The Builder.

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ILLUSTRATIONS.

The Sun Dial, Whatton House.—Messrs. A. W. Brewill and Basil E. Baily, Architects ..... *Double-Page Ink-Photo.*
Wolfgang's Kirche, Rothenburg.—Drawn by Mr. R. Phené Spiers, F.R.I.B.A. ..... *Double-Page Ink-Photo.*
Hotel Cecil, Victoria Embankment.—Messrs. Perry & Reed, Architects ..... *Two Double-Page Photo-Litho's.*

Blocks in Text.

Map of the County Council Scheme for supplying London with Water Page 268 | Wall Tiling in the Dining-rooms, Hotel Cecil ..... Page 277

CONTENTS.

A New Water Supply or London 267
Book-plates 269
Notes 270
The Architectural Association 271
Sundial, Whatton House 276
The Church of St. Wolfgang, Rothenburg-ob-der-Tauber 276
The Hotel Cecil, London 276
The Sanitary Inspectors' Association 278
The London County Council 278
Architectural Societies 279
Builders' Clerks' Institution of Great Britain 280
A Question of Urban Building Law 280
Student's Column: Metals used in Building.—XVI. 280
General Building News 281
Sanitary and Engineering News 282
Foreign and Colonial 282
Miscellaneous 282
Legal 283
Capital and Labour 283
Meetings 283
Recent Patents 283
Some Recent Sales 284
Prices Current of Materials 285
Tenders 285

A New Water Supply for London.

THE decision of the London County Council, on Tuesday last, not to proceed with the eight Water (Transfer) Bills, is a complete reversal of the policy of that body in regard to the water supply question. The Council no longer regards itself as a heaven-born authority sent to take charge of the water supply of the metropolis in the event of the present companies being superseded. It has now been resolved, though only by a majority of one, to "invite Her Majesty's Government either to deal with the question themselves or to appoint a Royal Commission to do so." In other words, before moving any further in the matter the Council wants to be quite certain whether, if the control of the water supply is to be vested in a central authority, the London County Council is to be that authority or not. It will then know how to act accordingly. We think the Council is well advised to take this step—indeed, it would have been better for it to have done so long ago. By assuming too much authority it tended to alienate sympathy from the general question as to the desirability of placing the water-supply under public control. Now that the Council is willing to have the question discussed, it may get what it wants, or at any rate the way is paved to a better understanding between conflicting parties as to the centralisation of the water control.

But it is probably a mistake to imagine that because the Council has given way thus far, it intends to abandon the water-supply question, or to altogether yield up its claims to be the proper authority to control the supply. The only difference is that whereas it formerly objected, it is now willing to have those claims discussed—at least, that is how we understand the present action. In the event of a Royal Commission being appointed, there is no doubt that the Council would use every endeavour to enforce those claims.

It is not a little remarkable that, at this juncture, the London County Council should have brought out a new scheme of water-supply for the metropolis,* and which is, on the whole, the most practicable scheme put forward in recent years. Yet, if we take these two circumstances together—the abandonment of the Water Transfer Bills and the publication of a new and practicable scheme, almost simultaneously—we seem to discern the future policy of the Council. The Council has satisfied itself, at length, that abundant water for London may be obtained from the Welsh hills; where is the necessity, therefore, for transferring in their entirety the undertakings of the water companies to the Council, assuming that body to be the future water authority? Such a procedure would be waste of money. What it wants is a mandate to proceed with the Welsh scheme, though it does not say so in so many words; but before obtaining that, the Council has wisely resolved to see how far the powers that be will permit it to assume the necessary authority to carry out the work. That is why the Royal Commission is wanted. Who would be better equipped for discussing the question before such a Commission than a public body with a feasible water-supply scheme in its pocket? It is absurd to imagine that the Commission would be seriously occupied in finding out whether or no a public water authority is wanted: the public has already made up its mind upon that point. The main question is, Who shall be that authority, the County Council or some other body? That is what the Royal Commission would have to decide.

In the meantime it will be well to consider the Council's new water scheme as designed by its Engineer, Mr. A. R. Binnie, assisted by Mr. Hassard, Mr. G. F. Deacon, and the staff of the Water Department. As previously remarked, this appears to be a perfectly feasible scheme, and it is to some extent based on the experience gained by Liverpool in capturing Welsh water. At the same time sundry points about it are not as clearly stated as could be wished, and certain observations made by the Engineer do not seem to be borne out by the facts. Briefly, Mr. Binnie proposes to utilise the head waters of the Rivers Usk, Wye, and Towy in the counties of Cardigan, Brecon, Radnor, and Montgomery, by impounding them in enormous reservoirs at convenient spots, and ultimately sending them by aqueduct to London. These sources of supply are situated at altitudes above 600 ft., extending to 2,800 ft. above the sea-level—sufficiently high to enable the water to be delivered by gravitation to service-resevoirs on hills in the neighbourhood of the metropolis, from which it could be distributed, also by gravitation, to consumers. The summits of Hampstead, Highgate, Shooter's-hill, and the Sydenham-hills would, however, have to be supplied by pumping. The existing distribution pipes are to be utilised. The scheme is so arranged that the work may be constructed in sections as required, and it is proposed to bring the water ultimately by means of two aqueducts, one to discharge into a service reservoir at Boreham Wood, not far from Watford, to supply the area north of the Thames, and the other to end in a similar reservoir at Banstead, not far from Epsom, to furnish the area south of the river. As will be seen on reference to the map, these aqueducts keep each other company from Wales through Gloucester to the neighbourhood of Chedworth, where they bifurcate, one going north-eastwards to near Buckingham and then turning south-eastwards until it arrives at its destination, the other proceeding in a southernly direction towards Basingstoke, and so on to Epsom. As an alternative, for reasons presently to be explained, an aqueduct (shown on the map) is tentatively proposed to run north of the two main aqueducts just alluded to, commencing from Hay, running up to the vicinity of Stourbridge, then down to the neighbourhood of Buckingham, and on to Boreham Wood.

To consider the scheme more in detail, we may commence with the divers catchment basins suggested. These are:—

1. Portions of the upper part of the Usk Valley (including Llangorse), with an area of 136,000 acres, or 212·5 square miles.

2. The Yrfon, a tributary of the Wye, combined with the upper sources of the River Towy, having an area of 102,600 acres, or 160·3 square miles.

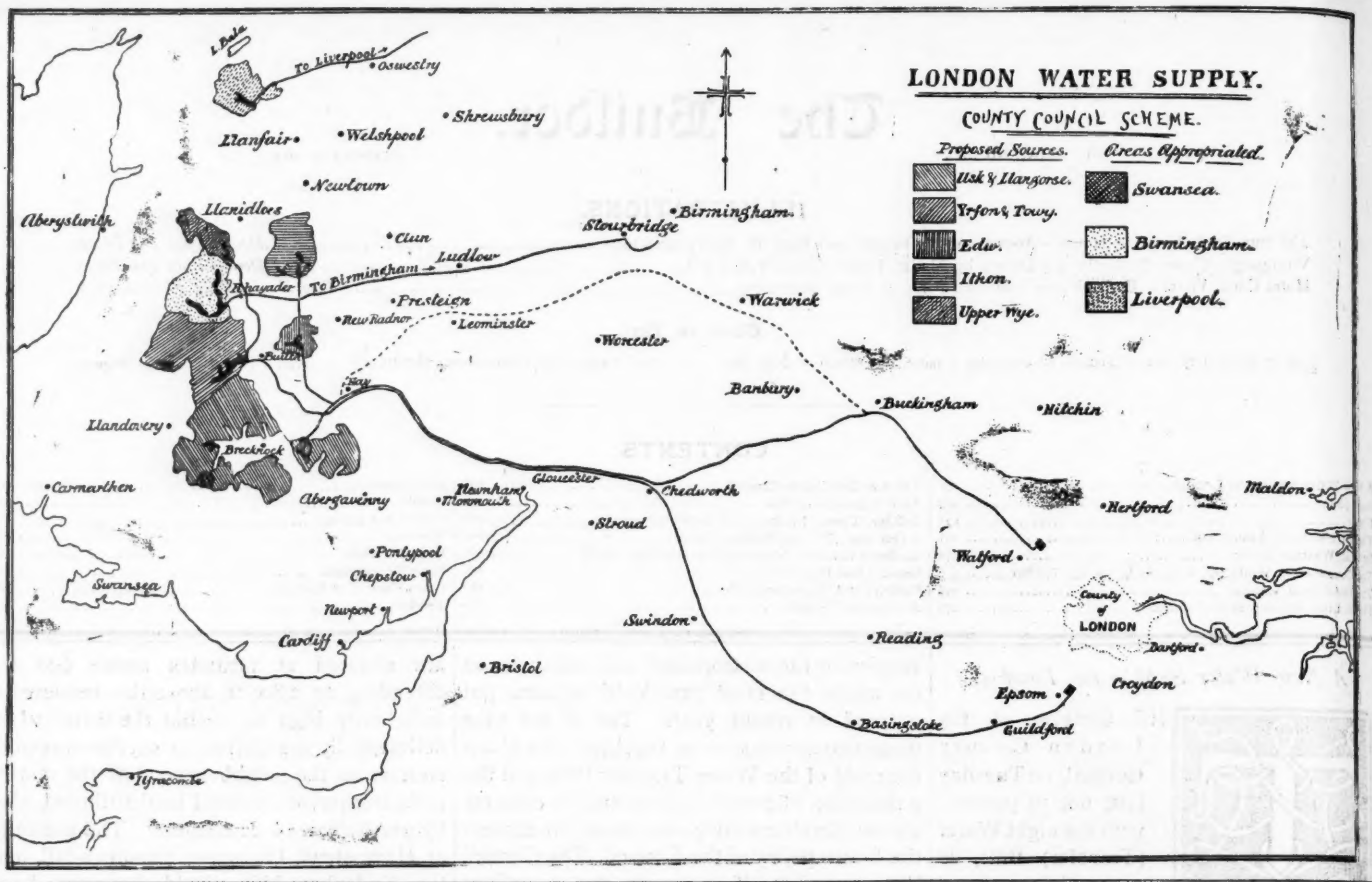
3. The Edw, also a tributary of the Wye, with 17,000 acres, or 26·5 square miles.

4. The River Ithon, which ultimately flows into the Wye, with an area of 34,800 acres, or 54·4 square miles.

5. The upper portions of the River Wye itself on the flanks of Plynlimon, with 22,000 acres, or 34·4 square miles.

Regarding the location of these different sites as indicated on the map, it will be

* "Report on Available Sources of Water Supply for London." By A. R. Binnie.



observed that an area already appropriated by Birmingham is sandwiched in between the Yrfon and Towy district on the south and the Upper Wye sources on the north. The proposed aqueduct running from the former to the latter district crosses the main aqueduct to Birmingham at Rhayader. It remains to be seen whether Birmingham is going to quietly submit to this prospective invasion of territory that might legitimately be regarded as within her "sphere of influence." It may be argued that the capital of the Midlands has already secured sufficient gathering-ground for her purposes, seeing that she has a slice of territory 45,000 acres in extent, which is said to be capable of yielding as much as 100 million gallons per day. Of this, Birmingham will only require about 27 million gallons daily, but a similar volume is to be discharged by way of compensation for the Wye. This takes into consideration, however, the circumstance that the existing supply to the city—17 million gallons per day—is to be kept on. If it should turn out that the water from the Welsh hills were preferred to the existing sources of supply, the latter would have to be abandoned, so that, on compensation and potable water being withdrawn, a balance of only 30 million gallons remains available in the watershed. But that is not all; the Birmingham Corporation is by its Water Act compelled to supply any towns situated within fifteen miles on either side of the line of aqueduct, if those towns desire to be so supplied. Such towns as Wolverhampton, Walsall, Bridgnorth, Dudley, Tipton, Wednesbury, Kidderminster, Redditch, Leominster, and many other populous places fall within the fifteen-mile limit, and there is the possible contingency of Birmingham being required to supply them, or some of them. With only 30 million gallons to spare, it will readily be perceived that the Corporation would be extremely unwise to permit London to occupy all the proposed ground without a struggle. We merely throw this suggestion out as a sample of the opposition likely to be incurred. It will be remembered that the London County Council were bitter opponents to the Birmingham Corporation Water Bill at the time it was passing through the House. That circumstance will not tend to ameliorate matters. In regard to Liverpool, all the proposed catchment-areas are too far away from her gathering-ground for that city to be able to make any very effective resistance, even if she were so minded.

Now, as to the quantity of water these areas are likely to yield London, Mr. Binnie estimates as follows:—

1. Usk and Llangorse area	=	182	million gal.	per day.
2. Yrfon and Towy	,, =	135	,,	,,
3. Edw.....	,, =	18	,,	,,
4. Ithon	,, =	37	,,	,,
5. Upper Wye	,, =	43	,,	,,
Total.....		415		

The Engineer is at much pains to convey an idea of what this enormous quantity of water means, and he compares it with the flow of the Thames, which might at first sight lead one to suppose that the watersheds alluded to will yield a greater volume of water than does the Thames. When we go into the matter, however, we find that special years and special months (not the wettest) are selected for illustration. There was no occasion to do this, and it would have been magnanimous on Mr. Binnie's part to have left the Thames alone.

The Engineer sees no objection to our still keeping on the supply from wells both in the Lea Valley and from the sources of the Kent Water Company, which supply is estimated at 67 million gallons daily. He adds this amount to the 415 million gallons available from Wales, and makes a total of 482 million gallons a day, which at the rate of 35 gallons per head per day would suffice for a population of nearly 13,800,000 persons—the probable population of the districts now supplied by the various water companies in the year 1945. In other words the scheme is based on a fifty years' outlook. We are told that portions of the scheme may be carried out as desired, which, in view of the facts last stated, seems rather facetious. In the first place, at least five years would be absorbed in Parliamentary and litigation work, to say nothing of the time it will take the proposed Royal Commission to hear evidence and "report," and for the afterwards properly-constituted water authority to make up its mind to put the machinery in motion. At least another five years must elapse ere the first section of the work is completed ready to deliver the water. By that time, according to estimated population and its requirements at the end of the ten years, it would be necessary to commence with section No. 2 of the work and so on. To borrow a phrase, fifty years "is a short period in the life of a great city," and when we see the areas hedged in, we may well ask whether the Engineer is contemplating a sufficiently large catchment area. Swansea has booked and secured some of the Usk valley (see map); whilst we are proceeding with the outline of the scheme would it not have been advisable to have proposed a larger area than that taken as a basis by Mr. Binnie? It is now or never; all large corporations in the Midlands not blessed with a good water supply, are looking towards Wales. The seizure must be effected at once, or it will be too late.

Another thing that strikes us is as to the grounds upon which the Engineer bases his figures as to yield of the several areas selected. We do not want to throw in the teeth of the County Council the fact that estimates as to quantity of water available from a given area have generally been below the mark, but we have a right to ask for further particulars on this head in view of the scanty facts given in the report. No particulars of any value respecting the rainfall are given, nor do we gather the precise amount of compensation-water to be allowed, though capacities of reservoirs are set out in detail. The Engineer has evidently presumed a little too much on precedent, and it is not altogether correct to infer (speaking of the geological character of the ground) that the old red sandstone is as impervious as the majority of the Silurian beds. We feel quite clear that percolation must be greater, say, in the large area proposed to be taken in the Usk valley, which is almost exclusively composed of old red sandstone, than in parts of the Yrfon valley, where the Bala rocks (erroneously said to be of Silurian age in the Report) crop out. It may be that the Engineer has taken these things into consideration, but that does not appear on the face of the Report, although it is the most vital part of the scheme. As the idea becomes further developed, the County Council would do well to publish a map or maps showing the geology, both of the solid and drift deposits, and the areas used for grazing or under cultivation; also to amplify the sketch-map now given.

In regard to the quality of the water, very little objection can be taken to that, and the Report of the Chemist appended to Mr.

Binnie's does not reveal anything that might not have been anticipated. Londoners who have been used to hard water will have some difficulty in bringing themselves to use the slightly yellow (owing to the presence of extremely-minute pieces of peat) soft water yielded by the Welsh hills, but it is wholesome enough. As is pointed out, a considerable saving is effected in various manufactures and in the household by the use of soft water. At the present time quite a large sum of money is expended annually in the Metropolis in softening the hard water now delivered to us by the water companies; there would be saving on this head. But we wonder what the unfortunate people who will be situated within the limits of the chalk well-water of the Lea Valley and in Kent (which Mr. Binnie proposes to retain) will say. There will be an exodus of all laundries, and many other industries, that is certain, from those areas to others where the water need not be softened. This affords ground for a further extension of the "betterment" scheme.

In reference to cost of the scheme, the Engineer furnishes the following as a total for the gross supply of 415 million gallons a day, to provide for all contingencies for a period of from fifty to sixty years hence:—

Head works at Llangorse, Yrfon, Edw, Ithon and Wye, with their collecting and communicating conduits and compensation reservoirs.....	£8,135,000
Aqueduct Llangorse to Elstree	7,160,000
Aqueduct Yrfon reservoir to Banstead	8,070,000
Terminal works at Elstree, filters, and connexion with existing distribution pipes	4,850,000
Terminal works at Banstead, filters, and connexion with existing distribution pipes	5,500,000
	33,715,000
Contingencies 10 per cent.	3,371,500
	37,086,500
Professional and Parliamentry...	1,685,750
Total.....	£38,772,250

As previously mentioned, however, it is not proposed to do all this work at once, and the Engineer is in favour, as a first instalment, of utilising the Usk supply of 182 million gallons daily, taking the water from the Llangorse Reservoir along one aqueduct to Boreham Wood, near Elstree. This is estimated to cost 17,500,000*l.*, including terminal works. The aqueduct, amongst other things, would have to cross the Severn by means of a syphon-pipe 13½ miles in length, and tunnel through the hard Jurassic rocks of the Cotswold Hills; that is, providing the more northernly route were not adopted. The latter route has been suggested, amongst other things, for greater security against the invasion of a foreign foe, when it would be advisable to have the conduit as far away from the English Channel as possible; the two main aqueducts which bifurcate near Chedworth would be better than one, for the same reason, though they have been designed more particularly to serve the Metropolis north and south of the Thames respectively. We are not of those, however, who apprehend much danger on that score from "foreign foes," though a danger might arise from disturbances nearer at home. The terminal reservoirs would, of course, be constructed to hold several days' supply to meet such contingencies.

So much of the scheme is, necessarily, of a tentative character, that we hesitate to scrutinise the estimates of cost. It may be remarked, however, that the actual cost of getting the supply would much exceed the figures given. For instance, the Lea wells and those of the Kent Company must be bought; and as existing distribution-pipes are to be utilised, something should be allowed for them, even if no compensation were given to the companies for their "vested interests." Birmingham has had to spend a great deal of money in purchases in Wales before she could satisfactorily proceed; London would, no doubt, have to do likewise, though there does not seem much provision for this in the estimates. At Llangorse a considerable amount of property is to be destroyed; these and other things have all to be reckoned with. In any case, and under the most favourable circumstances, the new scheme, with the purchase of any valuable assets that may belong to the water companies, could not, we think, cost less than about 55 million pounds sterling.

In conclusion, the scheme cannot be said, in principle, to be absolutely novel, as something like it was proposed as long ago as 1869 by Mr. H. H. Fulton, C.E., while Messrs. Hassard & Tyrrell, C.E., have written much to show the availability of the Wye and Usk for London's water supply. But the Report now given differs in important details from others, and is deserving of being regarded as practically a new scheme. It is a farce, however, for the Engineer to call his document a "Report on Available Sources of Water Supply for London," for it (with appendix) is only seventeen pages in length, and all other proposed sources than those alluded to in Wales are "dismissed with a caution."

BOOK-PLATES.

THE collecting of book-plates is a harmless if not a very intellectual hobby; it is something higher than the collecting of postage stamps, but altogether behind the amassing of prints, etchings or old china. It has only become a pursuit in this country during the last twenty years, though here and there in earlier days a single individual may have got together a number of book-plates. But in 1880, Lord de Tabley published a "Guide to the Study of Book-plates," and since then we have had, in Mr. Hardy's and Mr. Castle's books, new and more popular works. The St. Luke's Society also now publishes a journal, and the knowledge of book-plates has become in these latter days the trade of a band of connoisseurs. There is no subject under the sun which cannot become an interesting study if time and thought are given to it, to follow out its ramifications and to compare its details. We have no wish, therefore, to throw cold water on the study and collection of book-plates, for the more hobbies there are the greater are the sources of human happiness. But, relatively, the book-plates of the past have not usually been of much importance, either artistically or historically. Here and there we may come across one of the old heraldic types of book-plate with a finely-designed "mantle," or a powerful bit of decorative fancy by Dürer, or an undecorative but picturesque corner of a landscape cut on wood by Bewick. But for the most part the design is commonplace in an artistic sense, and throws very little light on any part of the details of history.

The object of book-plates was, and is, to indicate the ownership of the volume in which they are placed. So late as 1676 the word itself does not seem to have been in use, for in that year Loggan, an engraver of some note, wrote to Sir Thomas Isham speaking of "a print of your cote of armes." In 1791 Horace Walpole describes his book-plate as his "seal," so that it was really not until the beginning of the present century that the term came into general use. Most of the earlier book-plates were simply the coat-of-arms of the owner, with a background of a mantle. The name of the possessor of the work did not appear; the coat-of-arms was a sufficient indication of the ownership. As coats-of-arms became more numerous, there appeared in addition the name of the owner, a combination which was really unnecessary, though it may nearly always be seen at the present day, since, as already pointed out, the coat-of-arms was no place for the name. Yet later—roughly speaking from the beginning of the eighteenth century—the coat-of-arms disappeared, and its place was taken by some kind of drawing, often allegorical, sometimes realistic—as in the depiction of the owner's library; sometimes picturesque, as in the book-plate executed for Southey by Bewick, about the year 1810, in which "we have a rock thickly crowned with shrubbery from which a stream of water falls into the brook below. Against the face of the rock leans an armorial shield bearing the Southey arms. On the ground to the right of the shield, and in contact with it, is the helmet, supporting on a wreath the crest, an arm vested and couped at the elbow, holding in the hand a crossed crosslet. Across the sinister chief corner of the shield and trailing thence to the ground is thrown the riband bearing the motto, 'In labore quies.'" Altogether, as depicted in Mr. Hardy's book, this is a very graceful bit of work, wanting, however, one practical essential—namely, that no one unacquainted with the Southey's arms would know to whom a book in which the plate was inserted belonged. Much more practical is the plate which was used by David Garrick, which is also shown in this volume. The name appears in the centre on what may be described as an oblong panel with rather florid bordering, and surmounted by a bust of Shakespeare, below is a harp, a dagger, a crown and a cup, and the motto, "La première chose qu'on doit faire quand on a emprunté un livre, c'est de le lire afin de pouvoir le rendre plutôt." It is in truth these special book-plates of an original character which have the most interest, but the persons who executed these, if we except one or two men such as Hogarth and Bewick, were not possessed of sufficient artistic power to render the plates important as works of art. In the earlier book-plates there is a certain difference in the style; first we have a simple armorial style, with occasional difference of treatment in the mantling: then, about the Stuart period, we come to the Jacobean style, in which the shield is surrounded by very florid ornamentation, often with brackets and figures, or bust. Curiously enough, after this style died out, the style of ornamentation of furniture brought into vogue by Chippendale in the middle of the eighteenth century was copied by the designers of book-plates. So akin are the ornaments of book-plates to those of arm-chairs and table-legs at the period that the style is known among collectors as the Chippendale style, showing how little individuality was possessed by the persons who, at this date, were employed to design book-plates. The servile following of furniture designs continued to a later period, since then arose "the 'wreath and ribbon' style, which very closely resembled the decoration which Thomas Sheraton suggested for contemporary furniture." But wreaths and ribbons really formed a great deal of the artistic expression of the time, if artistic it can be called, and Sheraton furniture and the book-plates of the day were, probably, only two forms of the general style of decoration then in vogue. Those which depict interiors, such as the very elaborate book-plate of Lady Oxford, dated 1731, have, occasionally, some architectural interest. A portion of a library is shown in this plate, and through a doorway in the centre, flanked by Corinthian pillars, a view is obtained of a country house which stands in a park. A collection of interiors of libraries as shown in book-plates would probably be of some value, while those executed by Hogarth or Bewick have an interest and an importance, not because they are book-plates, but because they are executed by men whose works have attained a standard value in the world of art.

Those who wish to become acquainted with the character of quite modern book-plates must refer to Mr. Castle's pages—a very considerable part of his work deals with this portion of the subject. An attempt is made to classify this series, as by introducing the term "modern Die-Sinker style," but the divisions are not satisfactory; they do little more than explain one feature of the modern plates. The latter

are, in truth, of all kinds, but many of them are interesting, either from their designer or or from the design, and sometimes from both causes. Thus, for example, the book-plate of Mr. Christopher Sykes, by Sir John Millais, is very attractive. The allegory bears on the owner's Christian name, and illustrates the legend of St. Christopher bearing Christ across the water. The figure subject, though sufficiently shown to identify the legend, is partially hidden by the triangular escutcheon, which is linked on to the oval frame of the design in a peculiarly ingenious manner, the whole forming a little masterpiece of decorative and symbolic design. Mr. Walter Crane's book-plate, designed by himself, is very pretty and decorative, as might have been expected; his design made for Mr. Walter Besant is too pictorial. A striking design, printed in colour, given in Mr. Castle's book, is that made by Mr. Bernard Partridge for Sir Henry Irving, and which seems, from the anecdote given in the book, to have puzzled its possessor; who, however, like Mr. Castle, made a mistake in seeking for an emblematical signification in it. There is no necessity for a book-plate to be emblematical, and it is pretty evident that the author of this design simply intended to make an effective combination of line and colour, in which he has thoroughly succeeded. It consists of a very boldly-designed scroll ornament in thick black lines, with a bright red heraldic bird whose head and wings emerge from the scroll, the body being, as it were, wrapped up in it. The owner, on being appealed to for a meaning, said it was designed by Mr. Partridge, "though there was nothing of *that* bird in the composition"; but suggested it might have been intended to represent "a glorified sandwich man with a Lyceum playbill."

Whatever may be thought of the paucity of artistic quality in old book-plates, we do not think the same charge can be brought against the modern ones, as a rule. On the contrary, it is surprising to notice what an amount of artistic taste, variety, and invention is now bestowed on the designing of book-plates. In the present revival of the feeling for decorative effect in composition, the book-plate forms a new field for the exercise of artistic design and fancy quite as fertile as the "poster," and for the most part permitting and encouraging a more refined style and sentiment than is generally suitable for a poster. And we confess that the interest of the subject lies, to our mind, much less in the collection of old book-plates than in the design of new ones, and that the book-plates of the present will really possess a kind of value of which those of earlier times were for the most part destitute.

NOTES.

IN reference to our article in last issue on "A Question of Church Style," in which we suggested that the interior of the Roman Catholic Church at Chelsea, illustrated in the same number, was architecturally rather suggestive of a concert-hall or reception-hall than a church, we have received a communication from the architect, Mr. E. Goldie, intimating that in regard to his own feelings he is not much at variance with us. The Classic style for the church, as we understand, was prescribed in general terms by his clients, but the design as first made by the architect was very different from that carried out and illustrated. His design was for a church with a three-aisled nave in the western portion, spreading out into a domical treatment over an open floor in the eastern portion of the nave, which would not have had the secular effect that we attributed to the design as carried out. Various circumstances necessitated the modification of the design into the form shown in our illustration: partly the question of cost, which led to the abandonment of the dome; partly the necessity of contracting the site in accordance with the requirements of the London County Council in regard to the boundaries and the width of the adjoining road. As it was desired that the central avenue of the nave should not be made narrower than that provided in the original three-aisled plan, the ultimate result was that the interior was reduced to the one-aisled form shown in our illustration, the portion of the space at each side, left from the original width of the aisles, being treated as a series of chapels within recessed arches. It may be fully admitted that Mr. Goldie made the best with the design that was possible under the circumstances. In a future issue we will give the plan and a view of the interior as originally designed, showing what the architect's idea was, had he been able to carry it out.

ON Tuesday last the new American School on the Pincian Hill, Rome, was formally opened. To secure uniformity with the school at Athens the new institution is to bear the name, "American School of Classical Studies in Rome," but the title will be somewhat misleading, as the Early Christian, Mediæval, and Early Renaissance periods, both in art and literature, will come within its scope. The first steps towards organising the school were taken at a meeting in Philadelphia last autumn, under the *ægis* of the Archæological Institute of America. Great enthusiasm about the project was promptly shown, and a fund was quickly raised, adequate to the support of the school for three tentative years. Chicago, Boston, Philadelphia, Baltimore, besides many other places, have subscribed liberally. The school will have its home in the Casino dell' Aurora, which it will share with the American School of Architecture, and with schools of sculpture and painting. Professor Hale is appointed as Director; the Sub-Director will be Mr. H. L. Fothringham. Regular courses of lectures will be given, and studentships—or, as the Americans call them, fellowships—will be awarded. Besides the regular courses, the directors propose to carry out a great deal of informal teaching work in the Museum, and *in situ* at the various excavations.

THE Bradford Technical College is to be congratulated on having made an important addition to its establishment in the acquirement, at a cost of considerably over 1,000*l.*, of a 100-ton Buckton testing-machine, for which it is understood that they are indebted in great measure to the generosity of the late chairman of the engineering department, Mr. George Hodgson. Mr. Charnock, the present head-master of the Engineering School, gave a lecture on the uses of the testing-machine on Thursday last week. The provision of such a machine is an advanced step for a Provincial Technical College to undertake, and it will, no doubt, not only be an important factor in the instruction work of the school, but also afford a most useful testing centre for engineers and architects in the neighbourhood of Bradford.

THE opening of the Bristol Electric Tramway on Monday inaugurates a new era in the electric tramway industry. Although not the first in this country, it is the first that has had to conform to the Board of Trade rules for the regulation of electric traction. Several municipal authorities have recently appointed committees to investigate the working of electric tramways, and there is no doubt that the system adopted at Bristol, embodying as it does the best points in American practice, will have many imitators. The line is four miles long, extending from near the centre of the town to the flourishing suburbs of St. George and Kingswood, which have a population of nearly 60,000. A double track is employed except where the narrowness of the streets necessitates a single line. The trolley wires are the most distinctive part of the system. They are supported from ornamental standards with double arms where the streets are wide, and from side standards with single arms where the streets are narrow. The old arc lamp-poles have been removed, and the street lights are supported from the trolley standards. Altogether the trolley wires are very unobjectionable, and all manner of precautions have been taken to prevent accidents. The trolley-pole is attached to a stand 6 ft. above the car roof, and its little wheel running along the wire conducts the current to the two motors in the car, the current being returned by the rails and "feeders." To meet the Board of Trade requirements the rails have been made unusually heavy, weighing 76 lbs. to the yard. The necessity for this is to prevent the corrosion of water- and gas-pipes and other electrolytic troubles caused by leakage of the electric current. The electric generating plant consists of three slow-speed continuous current machines of the Thomson-Houston type, which supply energy at a pressure of 550 volts. As the aggregate horse-power of these machines is over 400, and there are only twelve cars, the cars go up steep gradients with the greatest ease, in one place the lines rising 40 ft. in 200 yds. The cars, which have been made by an English firm, have seats on the roof, in this respect quite unlike American cars, and are lighted both by accumulators and from the trolly wires. The British Thomson-Houston Company were the contractors for the whole of the work, which has involved an outlay of nearly 55,000*l.*

MR. JOHN HOLDEN, the President of the Manchester Society of Architects, has published a paper, which he read, on "Ancient Lights," to the Sheffield Society of Architects and Surveyors. It is a useful epitome of the law on this important subject, and shows a remarkable knowledge and appreciation of the legal decisions. From the point of view of a lecture, there is too much detail in the paper, and too great a dwelling on case-law, and it must have been singularly uninteresting to listen to. But in print it is a useful little publication, though the student will find it somewhat scrappy. Lectures, as far as possible, should, we think, deal with a subject broadly: it is impossible to go into all details in an hour or two. If some legal decisions are dwelt on with much particularity, there must be some exclusion of others. But few men are really gifted lecturers, and architects must feel a satisfaction at observing how well acquainted a member of their profession can make himself with the legal aspect of some subjects which engage his attention during his professional day.

A CORRESPONDENT sends us the conditions of the competition for a new hotel at Weymouth, drawing our attention to the requirement that designs are to be accompanied by a tender from a responsible builder to erect the building for not less than 17,000*l.*, and asks how such a *bonâ-fide* tender is to be obtained without quantities being taken out, and who is to pay for the quantities? The provision is not new in competition conditions, and we fear that competing architects have rather brought that kind of thing on themselves by their constant tendency to send in designs which could not be carried out for the proposed cost. But it is, of course, impossible for a builder to tender within a narrow limit on a set of competition drawings; a margin of 10 per cent. should be allowed. If a committee, however, appoint a competent assessor, he will be able to tell them whether a design is approximately within the proposed outlay, and approximation is all that can be expected on the basis of competition plans. Other features in this competition look very bad; it was addressed in the first instance "to architects and others," a very suspicious phrase; and the Corporation propose to retain as their own

property the three sets of plans for which they shall have paid the premiums of 200*l.*, 100*l.*, and 50*l.* respectively, and the right to carry out the first design, or any part of it, without any reference to the architect. No architect of any standing will have anything to do with them on those terms, they may be assured.

WE read in an extract from a French newspaper, which has been sent to us, an account of a fatal accident at a saw-mill, when "un enorme éclat de bois se detachait," hitting a workman in the side and killing him. An "enorme éclat" means, we presume, a large splinter. French newspapers are so given to sensational statements that one may feel some doubt as to the precise accuracy of the description of what occurred; but if the account is correct it seems to suggest a danger to be guarded against in saw-mills.

WE have received from Mr. J. Pattison Gibson, of Hexham, a selection of lantern-slides of architectural subjects, which seem exceedingly sharp and well-executed. Architectural subjects for the lantern are not too numerous, and in the provinces especially there is often a good deal of difficulty in procuring any, so that those who wish for illustrations of that kind for lectures and other purposes may be glad to hear of these.

THE Bishop of London is about to issue a commission of inquiry, under the Union of Benefices Acts, as to the expediency of uniting the benefices of St. George, Botolph-lane, and St. Margaret Pattens, Rood-lane. Each of these parish churches was built by Wren; the former has been closed, we are informed, for some while past, and, it seems, will eventually be pulled down if the projected union is accomplished. St. George's Church was finished in 1674, having cost 4,510*l.*; it is built of stone, and the design, whilst presenting no particularly striking features, is worthy of notice as embodying two or three characteristics of the architect's London churches—a simple tower, of good proportions, rising in three stages from the ground, a pedimented east-end, and a basement story unbroken by doorway or window, the entrance being in the tower. The windows, excepting those in the tower, are segmental-headed. The tower is 16 ft. square at the base; its panelled parapet has angle-piers on which rest urn-shaped pinnacles. A report upon the fabric's condition was made five years ago by the late Ewan Christian, for purposes of the London Parochial Charities Act, to the Charity Commissioners, who were advised that a sum of 2,700*l.* would be necessary for a restoration of the church. The rectory had belonged to Bermondsey Abbey, but at the Suppression it passed to the Crown. Since the Great Fire this church has served for the united parishes of St. George and St. Botolph, Billingsgate. The latter church stood in Lower Thames-street, being one of the four London churches with that dedication situated by a gate. Stow tells us that St. Margaret Pattens derives its name from the circumstance that in olden time pattens were usually made and sold in what is now Rood-lane. The lane took its later name from a rood placed in the churchyard whilst the church was being rebuilt; the rood, with its tabernacle or shrine, was found destroyed one morning in May, 1538. The tower, rising three stories above the church parapet, is more ornate than that of St. George's. It has flat pilasters at the angles; above the cornice are a balustrade and angle-piers, which carry tall obelisk pinnacles. The octagonal leaden spire is panelled on each face up to its apex, and pierced with small-sized openings. It is the most lofty of all the similar lead lanterns or spires by Wren, attaining, with the tower (which is 22 ft. square), to an elevation of 198 ft., and forming a conspicuous object in the group in this quarter of the City. In this church are an altar-piece ascribed to Carlo Maratti, a monument by Rysbrack to Alderman Sir Peter Delmé, *obiit* 1728, and some finely-carved flowers and foliage above the altar and on the organ-case; the mantling of the Royal Arms is also beautifully executed.

APROPOS of the project to set up a memorial to Mrs. Siddons at Paddington we may mention that in 1881 Mr. Gibson Craig, of Edinburgh, presented a fine likeness of her to our National Portrait Gallery. It consists of an alto-relievo, in white marble, by Thomas Campbell, originally intended, as we understand, for Westminster Abbey, and purchased by Mr. Gibson Craig at the sale of the sculptor's effects in 1858. The erection of her monument in the Abbey is due to the efforts of Macready, who first mooted his idea at a dinner of the Garrick Club, July 3, 1834. Certain entries in his journals * seem to show that its execution was to have been entrusted to Chantrey. But whilst the statue there is said by Dean Stanley,† Baedeker's Guide, and similar books, to be by Chantrey, its pedestal is inscribed: "Tho. Campbell, sculp. 1845." Chantrey died on November 25, 1841; in March of that year a committee had been appointed for the erection of a statue or bust in the Abbey. On the question of authorship the following passages in Macready's Diary are important:—

November 18, 1845.—Called on Campbell; saw the Siddons statue. He wanted 500*l.* I told him I . . . . would be responsible for the 400, and if I could get him more I would. He was satisfied.

June 9, 1848.—Walked on to Campbell's; saw the statue of Mrs. Siddons.

September 6, 1849.—Went with Katie to Westminster Abbey; saw the statue of Mrs. Siddons.

Chantrey had chosen the position, in St. Andrew's Chapel, for that statue, which, in the opinion of many, is inferior to Campbell's work, in relief, on the score of both faithful portraiture and artistic merit. Chantrey had expressed himself as being in favour of a portrait bust or figure, being quite averse to anything in the form of an allegorical or symbolical device.

THE fifth exhibition of the Society of Portrait Painters, opened a few days ago at the new Gallery, has variety enough, but it suggests to a curious extent how entirely we are without any recognised or recognisable school in portrait painting. All kinds of systems of treating portraiture are illustrated in it. There are those in which a mere representation of the original, in as realistic a manner as possible, is the painter's object. There are others in which pictorial effect is the object, but a pictorial effect depending in some cases on the treatment and lighting of the head, in other cases on the costume, in others on the combination of the figure with accessories or landscape. Then there is the archæological portrait, such as Mr. Herman Herkomer's (35), a deliberate imitation of Gainsborough. The frankly realistic portraits may be divided into those which are hard and wooden in texture and crude in colour, and those which combine generally realistic effect with harmonious colour and a rich texture. In these the picture is in fact not treated with absolute realism, but it suggests to the average spectator a realistic likeness. In this class of portraits Mr. Wirgman is especially successful; see his "Sir Henry Davies" for instance (26). Mr. Lavery, in several in many respects fine pictures, disappoints us in the fact that while the costume is admirably painted and the pose and drawing of the figure always good, the face is, as a matter of colour and texture, the least successful portion of the whole; the flesh looks dead and pale. Mr. Hacker's portrait of Mr. Tomlinson (15) is a capital specimen of the kind of highly-finished realistic portrait which just escapes hardness; M. Carolus Duran is just over the line in his brilliant half-length of Herr Thaulow, which is hard and over-accentuated. Mr. Cope has dealt very ably and in a broad artistic style with "Lord Crawshaw" (34) in hunting costume. Among the portraits which depend for their principal effect on the treatment of costume, Mr. Olivier's "Mrs. Baillie of Dochfour" (38) is clever and effective, if a little theatrical. Mr. C. N. Kennedy's portrait of Mrs. Kennedy (77) is something more than a costume portrait, though a great deal of the effect depends on the colour of the dress and sofa-cover, but the head is finely painted also. The finest work by far in the collection, and which is alone worth going to see, is Mr. G. F. Watts's exquisite half-length portrait (27) of an old lady, one of the most spiritual things which he has ever produced, beside which the best of the others seem rather commonplace.

THE correspondence in the *Times* on the subject of Hyde Park has been characterised by a somewhat Pharisaical tone. Anyone who was not in the best of clothes who has frequented it has been set down as a "tramp." There is no doubt that any practice such as washing at the fountains, and dressing under the trees, and so forth, should be stopped. But on the other hand, nothing could be worse than to try to keep Hyde Park for what are comprehensively called well-to-do people. It is a tribute to the usefulness of open spaces that the poor and distressed go to Hyde Park, and enjoy some fresh air and pleasant vegetation: it answers its best purpose when it becomes a place of enjoyment to the masses. The Sunday preaching and political haranguing are another matter, and in our opinion should be stopped on the same principle—that although they may amuse a few loafers, to the general public, high-born and low-born alike, they are an unmitigated nuisance, and spoil the legitimate enjoyment of the Park.

THE ARCHITECTURAL ASSOCIATION:

ANNUAL MEETING.

THE opening meeting of the present session of this Association was held on the 11th inst. in the meeting-room of the Royal Institute of British Architects. Mr. W. D. Caröe (President) occupied the chair, and there was a large attendance.

On the motion of Mr. F. T. W. Goldsmith, seconded by Mr. A. B. Pite, the Committee's report for 1894-5 was unanimously adopted.

Mr. H. W. Pratt (Hon. Treasurer) next proposed the adoption of the balance-sheet. He was sorry that the accounts were not quite so good as those of last year; still, there was a substantial sum of money in hand. He also proposed a vote of thanks to the Hon. Auditors, Messrs. Sim and Buss.

Mr. Hooper seconded the motion, which was agreed to.

Several donations to the library were announced, and votes of thanks were accorded to the givers.

The Chairman announced that the Conversazione would take place on Friday, the 25th inst., and that tickets might be obtained for members' friends at 2s. 6d. each.

On the motion of Mr. B. F. Fletcher (Hon. Sec.) cordial votes of thanks were passed to those gentlemen who had allowed the members to go over their buildings during the A.A. excursion.

The names of forty-one applicants for admission into the Association were next read.

The Chairman then presented the prizes for Session 1894-95, the following being the full list:—

MEDALS AND PRIZES.

Session 1894-5.

A.A. Travelling Studentship (*Bronze Medal*) H. J. Triggs.

Measured Drawings Prize: A. Bryer.

Essay Prize (*Silver Medal*): T. E. Abbott.

Mr. James Brooks Prize: P. R. Smith.

Discussion Section Prize: C. H. Fowler.

Oliver Prize: H. C. R. Hide, first prize; A. J. Roddis, second prize.

List of Medallists, Session 1894-5.

Division I.: E. P. Wheeler, silver medal; A. Smithers, bronze medal; C. F. Dawson, hon.

* "Macready's Reminiscences, and Selections from his Diaries and Letters," edited by Sir Fredk. Pollock, Bart., 1876.

† "Historical Memorials of Westminster Abbey"; fifth edition, with the author's final revisions, 1882.

mention. *Division II.:* P. J. Groom, silver medal; E. Bates, bronze medal; E. H. Evans, hon. mention. *Division III.:* C. W. Surrey, silver medal; A. H. Allan, bronze medal; F. Catling, hon. mention.

Studio.

Division I.: H. C. Bathurst, silver medal; C. Martin, bronze medal; J. G. N. Clift, hon. mention. *Division II.:* H. C. Trimnell, silver medal; H. C. R. Hide, bronze medal; S. Perkins, hon. mention. *Division III.:* J. R. Stark, silver medal; J. Hunt, bronze medal; J. W. Abraham, hon. mention.

List of Prizes and Certificates.

Division I.: E. P. Wheeler, Certificate and Prize, Greek and Roman Orders; A. Smithers, Certificate and Prize, Materials and Construction; A. Smithers and E. P. Wheeler, Certificates, Perspective; C. F. Dawson, Certificate and Prize, Elementary Physics. *Division II.:* E. H. Evans, Certificate and Prize, English Architecture; G. H. Paine, Certificate and Prize, Materials; S. Perkins, Certificate and Prize, Elementary Ornament; P. J. Groom, Certificate and Prize, Stresses and Strains. *Division III.:* P. W. Meredith, Certificate and Prize, Practical Design.

Extra Subjects.

E. P. Wheeler, Certificate and Prize, Plane and Solid Geometry; W. Hearn, Certificate and Prize, Land Surveying; C. W. Surrey, Certificate, Quantity Surveying; H. C. Lander and A. T. Griffith, Certificates and Prize, Modelling.

The Chairman then delivered the following address:—

President's Address.

There is no need of explanation or apology if in addressing you to-night my first word is of architectural education. We represent the foremost educational body in matters architectural which has existed in the country, and this year has seen new needs and new developments in our systems, which call inevitably for explanation and remark. We exist primarily and expressly as an educational force, and have so existed for nearly fifty years, and our history groups itself entirely around this object, and shows this as our original and ultimate end.

It was the perception of the thousand difficulties which surrounded the path of the student of architecture when left unaided to plod alone through problems technical, archæological, and artistic, that prompted Mr. Gray, forty-eight years ago, to write to our constant friend, the *Builder*, stating the want of some institution for the study of architecture, which led to the collaboration of Mr. Kerr and Mr. Gray in creating, from the embers of a not too prosperous benefit society of architectural draughtsmen, the Architectural Association, with Mr. Kerr as its first President, and education as the keynote of its existence and the subject-matter of Mr. Kerr's initiatory address. May I say here with how much pleasure we all look forward to doing honour to the author of that address, and of our being, when we keep our Jubilee in the year of grace 1897? Our initiator may feel justly proud of the fruits of his action of nearly fifty years ago, and of the progress and influence of this his fledgling; while we in our turn are proud to have with us our *doyen* and first President, who was ready when the society needed his help to step in and take his place among the number of our instructors.

Since these, our beginnings, we have had some necessary changes in our methods of education; from the system of instruction by mutual criticism has grown that of instruction by voluntary visitors, which continued until 1891, and made our classes so deservedly popular.

Towards the close of the last decade, however, it became evident that some change would be inevitable. The influence of the new condition of things at the Institute was making itself felt. The Voluntary Examination of former years had developed in 1882 into the compulsory examination for admission to Associateship of the R.I.B.A., which brought at once in its train the coaches and crammers and unprofitable facts of all examinations, with the divided camps of those who hated and those who supported; those who believed and those who denied; Memorialists and Societies for the Propagation of Registration Bills; and we were all by the ears with a new system and other standards erected among us, to be approved or disapproved as our temperament leads us, but necessary to be acknowledged and dealt with as with existent facts.

Exactly five years ago your past President, Mr. Stokes, addressed you from this chair, and the burden of his words was this—that systematic teaching had become a *sine quâ non*, that we should memorialise the Institute either to undertake this teaching itself, or to help us to do so; the result of which memorial was the handsome grant made by the Institute to us as an educational body—this function of education remaining with us. This grant was made and has been continued in a broad and liberal spirit; despite the controversies, not only among the profession at large, but among our own ranks as to its policy—no conditions have been attached by the Institute to our acceptance of its bounty; and we undertook the reform in our system with a will. As has always been the case with us, the chief energies of our officers were devoted to the admirable task of perfecting and improving our schools and our system of education, of revising them as new needs demand, and of bringing them into direct agreement with the requirements of the time. This task, this revision, constituting one may say a revolution in all our former methods, was as difficult of accomplishment as it was deftly accomplished; and to the movers and workers of that year the Architectural Association should, I affirm, look back always, as to its protagonists and heroes!

We now have before us the results of four years' working of the new scheme, and you are aware that in the year 1893-4 we had the satisfaction of proving that even without the aid of the Institute the new scheme could be made financially successful, leaving us with a substantial balance.

But a meeting of the ways has come, and other causes have been at work which demand a new adjustment. The session just past does not show the desired continuation of this success, and though more has been made of fortune's fickleness than is perhaps necessary, yet we have to regret a considerable falling off in our students as well as in the number of our new members, though the work done in our Classes and Studios has been of first-rate quality. Your Committee set itself to fathom the cause, if cause there were, of the dwindling numbers, and worked with characteristic energy. Past-Presidents, Committee-men, Instructors met in conclave to discuss the situation; the views of the most competent and advanced students were sought as to any deficiencies found by them in the working of the curriculum, and finally a special committee was formed to investigate and to report upon the whole scheme.

That committee worked as A.A. committees know how to work, and perhaps you will permit me, as its Chairman, to give you my own views upon the slackening of our success of last session as compared with the session before it. It was, I believe, due to passing and not to permanent causes—nor is there ground here for any pessimistic cry that our prime is past and our *rococo* period upon us. It is obvious that the number of incipient architects cannot be absolutely the same, session by session, and we must at all times have our fat and lean years. It is not unlikely that the lean should come when trade is proverbially bad. I suspect also that the discomforts of our too small rooms, when crowded almost to overflowing, as they were the session before, have had something to do with the decrease in our numbers of this year. But apart from these, other causes have also been at work, and first of these we may consider the re-organisation of the examinations at the Institute.

Whether acknowledged or not, it was undoubtedly in the consciousness of those who framed our curriculum four years ago, that our course of study might be helpful to students preparing for the Institute Examinations—indeed, that such students would be attracted by it. Nevertheless, although spoken of, the exact dovetailing of our course of study with the date of the Institute Examinations has never yet been achieved. So that a student sitting for examination must either sacrifice some part, and that the final part, of his studies in our schools, or must delay the date of his examination until six or seven months after his study for it here was complete.

Now, gentlemen, I touch upon the pith of my address to you to-night, viz., Shall our course of study acknowledge these examinations and aid in preparing for them? or, shall we stand aside on the neutral ground of giving a good and thorough architectural education, *not* of a nature to be best tested by examination alone? or again, shall we oppose these new tests of a merely stereotyped efficiency by formulating our scheme on different lines, and with an intentional disregard to the standards and arrangements of the Institute examiners?

I hope I shall have you with me when you have heard the arguments for the resolution at which your Committee has arrived, and in delivering my message I should like to make my own position clear, having myself been a Memorialist, and holding still every jot and tittle of the beliefs that that body strove to make clear, differing only from it in its final and exaggerated antagonism to the Institute. The world of education has, as we all know, for years been passing through the fire of examination, and yet Moloch is not appeased; yet upon all sides we hear that the test has not proved itself the purifying medium and final court of appeal that a sanguine generation supposed it. It is notable that the Institute has only come in at the finish, lighting its torches when others are putting out or trying to assuage the flames. I have a certain measure of real hope that before many years are out the most eager advocates of architecture by examination will have found that no form of diploma, no corollary of significant letters, will in any way advance the cause we have all at heart; but that these weighty degrees may even prove something almost akin to a burden upon their bearers and an imposition upon the public, our employers. Already I hear whisperings of the failure of these ideals so plausible and promising; how the man who was safest in marks is not the surest in merit; in short, that condensed nutrition sometimes suffers in the tinning. The examination is the safeguard of those alone who look no further than an official guarantee of stereotyped efficiency—the terror of those whose hope is for the freest and fullest development of the artistic spirit. Now, the safeguard is not always safe; but the terror is always terrible!

Nevertheless, I know well that our modern world will never more be persuaded to run its appointed course off its chosen rails of degree and diploma—the examination in some form or other we shall always have with us; and to some natures, to some types of mind, it may possibly be not only necessary, but expedient.

It seems to me that we must admit this necessity, and must acknowledge the dangers of this modern tendency, and must arrange both our own scheme of life and the curriculum of the Architectural Association accordingly.

Whatever be our views of the effect, helpful or hurtful, of organised examination, it exists at Conduit-street—a positive institution, a factor in the making of the career of a large body of aspirants to our calling and to the life-work which it involves. Critics, memorialists, societies, may fret as they will—none of our cries has effect upon the one fact that the examination exists and is popular; as matters go at present, whether for good or for evil, an ever-increasing body of candidates press in. Now if, in the ever-memorable words of Silas Wegg, "The nose must be brought to the grindstone," though I, for my part, cannot admit that noses were ever intended for, or will ever be improved by, grinding; yet, still further to mix his mixed metaphor—if the nose *must* be ground I will do my part, at least, to make it of tempered steel, and will only rejoice—apart and on occasion—that in my day (and Mr. Boffin's) "the sound of the grinding was low."

Now the only way in which we can combat the examination evils—the cramming, the ill-digested knowledge, the triumph of superficial facility over the slower strength of original thought, of mere curriculum cram over artistic research; the only way in which the examination itself can possibly be made to serve a useful end, is by the provision of an adequate, thorough, and intelligent education for the many-sided calling of an architect, which may be undertaken both before and coincident with the practical training of pupilage—which may be thoroughly assimilated and solidly acquired, and which shall maintain as its standard and its keynote that "cramming shall not be."

Shall we refuse our aid to the student who is entering the profession by an honourable road, recognised by the period in which we live? Shall we tell him to prepare himself as best he may, but that we know nought of examinations and their needs? let him seek a crammer that the victim may be decked for the altar!

If we do this I say that we lay down our charter of education, if we do this we have no longer a right to our standing of fifty years. We are here to teach of truth and beauty and knowledge; the better we can do this the less harm can come to the world from the deadening grind of the treadmill. The more we can tempt to our teaching, the more freed men there will be for the teachers of learning to come.

We have so often agreed upon the main needs of an architect's education that it is enough to restate them concisely.

(1.) That the system of pupilage or apprenticeship is good as far as it goes, but that it does not go far enough.

(2.) That it should be supplemented by systematic training by skilled instructors.

(3.) That that training should be directed to stimulate the artistic faculty — to order the imagination, to give the necessary practical as well as theoretical knowledge in all the accessories of the craft; in short, should consist of work in studio, lectures, class-rooms, and in *Workshop*.

Such being the general statement of the views to which much discussion and experience have brought us, it seems unnecessary to amplify or to repeat the arguments which we have both heard and read so often during the last decade.

Four years ago, when your Past-President, Mr. Baggallay, explained our new scheme to the Institute, in an address full of insight and force, his chief point was conveyed in the words, "We believe students want a course which will lead them up to your examinations, and we believe they are willing to pay a modest sum for such a course." The Committee has accordingly decided to bring classes and studio work into line with the requirements of students for the examinations. Such students will find all their needs fully considered and provided for. The Institute has met us half-way, and altered the dates of its summer examinations, both intermediate and final, to suit our classes. At the same time, we leave it to the free will of our students to enter for the examinations or not, as they think fit; and we continue a goodly number of classes which are quite beyond examination requirements, but which we recommend to every earnest student who desires the best and fullest instruction in the matters of his art which lie within the scope of a teacher. But we go further in an opposite direction to that suggested by mere preparation for examinations. Before 1891 all classes were on the self-help system, the chief of them being those of design, elementary and advanced; it was never intended that the advantages or methods of these very popular classes should cease, as Mr Baggallay explains very clearly in the address to which I have alluded. These anticipations having hardly fulfilled themselves in this respect, we have, therefore, formally re-instituted these old classes, with their excellent system of visitors, upon a basis that all will, it is hoped, approve—all being able to share in gratitude to the visitors and instructors who have allowed themselves to be enrolled upon our lists, and to whom let me now express our indebtedness.

Thus the old and new ways meet, leading us to a new feature which has been almost a dream for many years past to those connected with the management of the Architectural Association—viz., the establishment of Handicraft Classes. As one who has worked at the bench, has dabbled with modelling clay, and has plastered walls and set masonry, is it necessary again to urge from this chair the advantages to be secured by an intimate practical acquaintance with the handling and fittest treatment of materials—the proper employment of which is the root and branch of all good design, all architecture worthy the name.

I do not say it is necessary for us to be as highly skilled in each craft as a life-long labour has made its industrious artisan, but we do want to be able to handle materials intelligently, and to have constant opportunities of watching others handle them deftly; and this practical training is so much the more helpful if it is acquired side by side with the more theoretic knowledge evolved from the lessons of the past, a mastery of which will help us to avoid the pitfalls into which even a skilled artisan may sometimes lead us, when by ignorance of proper principle he may prostitute his skill to the destruction of his art.

It seems a wasteful policy to multiply classes in any subject beyond the demand for them, and inasmuch as some excellent Handicraft Classes already exist in the Metropolis, it would seem even a greater advantage to our students to secure for them the entry of these, than to undertake the organisation of competing classes on our own account.

The Polytechnics of Battersea and Chelsea have thrown open their doors to the architectural student, and negotiations are now afoot which, I have every reason to hope, will prove successful for the admittance of our students to the locally convenient and desirable classes, conducted by the Carpenters' Company, at the Trades Training School in Great Titchfield-street.

Thus we have remodelled our teaching, forming some of it anew, making some of it continuous of our happiest traditions of self-help and mutual aid. Some of us are prepared to go further and to think it wisdom to consider earnestly if we may not enlarge our borders of usefulness by opening our schools to others outside our elected members. A sub-committee has, in fact, reported in favour of this view, subject, of course, to very necessary reservations. In enlarging upon it I should say that I am fully aware much may be forcibly said upon the other side, and I bind no one by giving you my own deliberate conclusions. May we not offer our educational advantages (let us say) to the engineer and the builder, while our social privileges and Association should remain our own, and need in no way be touched by this proposition? As a wealth-seeking nation, we have just cause to be proud of the financial enterprise which develops the value of property, of the triumphs of our engineering skill, justly recognised and eagerly sought to the limits of the civilised world; but as artists what shall we say of the blatant villa, decked out with all the gewgaws of the builder mind; of the railway stations and bridges with their (doubtless clever) iron construction, too often veiled and obscured from our ready admiration by screens of wonderful catalogued "ornament," of a bald facility and prolixity only possible to cast-iron? What should we say as artists to these great leaders of latter-day civilisation; these guardians and makers of modern domesticity and patriotic enterprise; these builders and engineers who are burdening our land and the whole world with their structural nightmares, but that our banquet is ready, and we will go forth into the utmost parts of the city and (as far as may be) compel them to come in? Let them wander no more unchecked and untaught in their Elysian fields, where a cast-iron bridge is trimmed in the style of the Alhambra and "ornamental iron castings are kept in stock to correspond with every style;" but let us offer to them also the training in thoroughness and knowledge, that their attempts architectural may no longer move us in our lighter moods to laughter, in our sombre moods to "thoughts that do often lie too deep for tears." We have no wish to deprive them of their dabblings in our beloved art, only to bring it home to that common sense of theirs, which is, we are told, so pre-eminent, that the art which can, and does, absorb the best creative instincts of the world's artistic prime cannot be lightly dismissed by selection from a founder's catalogue of castings, or well-deputed to a third-rate architectural ghost. That the engineering pupil shall join in our course, sharing our advantages of handicraft and theory, may assuredly prove as helpful to him in his future as it would be wholesome for the whole world in that his individual theories of proportion and ornament should be no longer developed in our midst. There are, of course, single buildings as well as single engineering works (witness the Forth Bridge) rising or standing about us—works of thought and of power which may fitly range with the worthiest and not be ashamed. But what of the others, the rank and file of so-called architecture—"the houses in between?" It will not justify us in our aloofness that many of these know not the architect, that no pupil of our schools has brought down his pencil to their level. If we are here as a society for the development and study of the practice of architecture, let us open our school also to the builder and teach him the ethics of building.

Meantime, let us put our house in order, that when new learners come, whoever they be, all may be ready; that the all-important question of house-room, which has occupied your Committee so seriously for several years, may be efficiently solved. Our own work has already been much hampered by our narrow and not too convenient limits. This cannot be treated as a question of funds alone, but as a primary need of our continued existence as a successful corporate body, that more adequate accommodation shall be secured within the most suitable locality. An energetic sub-committee has been diligently employed in the search, and has laid a promising proposition before us, which it would as yet be premature to discuss. Should it prove necessary to make an appeal at an early date to the whole body for support, I feel confident that this will be gladly given, not only by members of our own Association, but also by our many friends and well-wishers, within and without the profession. When these new premises are secured, our next ambition must be fulfilled, and day classes started, with day schools of handicraft, a scheme which will probably be approved as much by the masters as by their pupils.

There is another phase of this question of education to which our attention has been lately drawn—a phase of the greatest importance to all who are interested in industrial excellence—the only form of industrial progress for which we architects need greatly care. I refer to the better education of the British workman. The men themselves have so far stepped in to render our own efforts in this direction abortive. At present the labours of our Committee are in abeyance, though I hope that steps may soon be taken by which these labours may be resumed. Meanwhile we should note that other influential bodies are doing good work in the direction of the revival of the system of apprenticeship, a revival which all who have studied the question, including the artisan himself, seem strenuously to support.

The Plumbers' Company are conferring upon us all, architects as well as plumbers, the first of benefits in encouraging this spread of apprenticeship; by their action a goodly number of youths are yearly advanced in this direction. Other City Companies are also working to the same end, and it behoves us all to further the movement as far as we can. May I suggest that those who interest themselves in this matter, one of so great importance to us as architects, should study the history of the decline and fall of the time-honoured system of apprenticeship, and of the influences at work in the early part of this century, notably, the *laissez faire* doctrine of the school of political economy then asserting itself, although now discredited. Such study will be found as interesting as it must prove helpful in the furtherance of the cause we have at heart.

Not we alone have our ambitions for higher educational advance. This year has seen an entirely new departure in University education at the marvellously energetic and successful Liverpool branch of Victoria University. There is organised a School of Art, of which the head and director is the Roscoe Professor of Fine Art and Professor of Architecture; our esteemed member and late fellow-worker, Professor Simpson, holding the dual post, an amalgamation and a timely recognition of architecture which must not go unnoticed. That the Liverpool University, phenomenally modern and enlightened, eschews the study for diploma examinations in its scheme of architectural education (and even the mention of them) and exalts handicraft is, to my mind, a significant fact, bearing out my own views already urged, and hopes for the future.

The admirable summary of this proposed scheme of education, which has been circulated amongst us, has, as a leading feature, classes for the young student who has not yet entered his pupilage. Provided that care is taken to avoid the danger of too early specialisation at the expense of that general education, of which no man stands more in need than does the architect, there seems much to be said for this proposal. But we need so much beside specific and technical training to make us architects that Gwilt, Fergusson, or Parker make but ill substitutes at an early age for Virgil, Horace, and Homer; nor does a knowledge of the science of thrusts replace the pure mathematics. But this is a matter for parents who would bring up their children to our calling.

Another school, and that at our gates, is said to be in the making, backed by the rates of London, not to be built, we hope, from the ashes of the past by the enterprising L.C.C. Of course the questions must occur to us—Is there room even in London for two important schools to exist side by side? Will a supply of students be found to support both? And, if not, is the L.C.C. wise in attempting competition with an Institution highly organized, full of life and vigour, and whose teaching is based upon half a century's experience? We stand firm in our position. Even the rates cannot supply our staff of visitors and teachers, formed of some of the leading architects of the day, nor the special entries to their buildings while in progress, with the hundred and one other privileges granted to A.A. students alone, and which can only belong to students so long as architectural education remains under the direction of architects themselves, a point of importance in connexion with our schools to which too great prominence cannot be given. If the County Council desires to expend its energy, or the funds at its disposal, in the direction of architectural education, would it not do well to assist us still further to extend our sphere of usefulness? It may be that our position is not as strong a one as we would desire it to be, and hope to make it, but we certainly demur to the statement in Mr. Llewellyn Smith's Report to the Special Committee on Technical Education that we carry on our work "tentatively," or "may at any time fall to the ground." We are neither tentative nor moribund. We are already "a school of architecture," but we are quite ready, under conditions to be agreed, to "be developed by the assistance of the Council."

We shall before long have the opportunity of hearing from Mr. Lethaby the direction which it is proposed shall be taken by the proposed L.C.C. Architectural School. His views upon the subject we have already learned in a celebrated and much canvassed volume. "Handicraft" is his key-note and ultimatum; the architect, again the master-builder, shall leave history and theory and learn how to build by building with his own hands, and construction shall come to him in Nature's school through the touch of her materials. To any view of Mr. Lethaby's we shall all listen with the greatest respect and attention, but he has still to reconcile his advocated method of training, itself based upon the achievement of the past, and known to us through history alone, with his demand for the abandonment of all derivative and all teaching from the historical past—also for the application of these his ideals to the accomplished facts and complicated requirements of this our century. We may not be able to unlearn its so-called civilisation, or even to revolutionise its methods, but we may and must resist them when faulty, improve them, better them; and to my mind this can best be done by our reliance upon, and through our knowledge of, the past. We as a craft do not share the proud position of the present-day pressman, with his latter-day superiorities, and his calm consciousness that "whatever is is best." Had we no other need for knowledge, historical and literary, the past glories of our art would take our thoughts to our book-shelves, and our feet to the nearest ruin, to learn from the past its splendid lesson of discontent.

But though our general education is much, and the method of our architectural training is much, yet the spirit that worketh within us is more, and that teaches itself its own best lesson, and goes to Nature herself as the surest help. Educate your eyes, strive to see and understand Nature's harmonies and restraints. We have a heritage, daily dwindling, of characteristic beauty in our English landscape. Let us see that by no act of ours any particle of our inheritance shall be stolen from our sons; let us stand as a remnant—1,200 strong at least—who have not bowed the knee to the Baal of modern vulgarity, 1,200 at least who will refuse to recognise the cry of destruction as that of progress, and who will tenderly keep all their trust of harmony and holiness.

In your sketching of Nature, look for Nature's colours and materials; of buildings, for the spirit of them. Soft washes and pretty outlines make nice albums, but they are not the end of an architect's sketch-book; we want the receipt-book, we want the spirit. A short time ago I saw a sketch, and a fine one too, of Snowdon, slaty and sombre, depicting it standing all glorious as a mountain of white chalk or lime-stone; and another drawing of a beautiful Late Mediæval building, in which the most characteristic quality was the irregularity of the bonding, the stones having been cleverly used or placed just as they came to the mason's hand. But in the sketch, amidst all the glories of dexterous chiaroscuro and subtlest perspective, the masonry appeared of the nature of Anglo-Saxon long-and-short work, only more rigid. Such sketching may teach many things—but never architecture; to such blindness and such misconception may we owe the vandalism which has scarred so many a country-side—the ignorance or lack of judgment which has ruined so much antiquity.

I have often noticed the abhorrence of Nature, more especially in her mountain moods, to foreign material or alien colouring, and specially her dislike of red in a grey country. When Manchester saw fit to fill her empty cisterns from beautiful Thirlmere, none of us could feel such a claim unjustifiable; a beneficent Act of Parliament even interposed, to save the district generally, and one of the most attractive and characteristic of our lakes, by ordering the obliteration of all the rubbish and scars necessitated by laying the main. This indeed was done, and fairly well done, and though many feet were added to the lake's soundings, and acres to its expanse, all might have been accomplished so that future generations who had not known the spot before could still have enjoyed the grassy northern slopes of great Helvellyn and the steep opposing rocks of Raven Crag, with no greater distractions from man's handiwork than the hard rigid lines of the modern roads, which, perhaps, we must concede ought to be cut as level as possible. True that a shed was necessary for the turncock, and a dam, but what more useful and seemly than a humble cottage planted round with trees, soon blending with its surroundings as does a shepherd's hut on the mountain side? And for the dam, why not a noble wall faced with the natural boulders, ready for its clothing of moss and fern and shrub, so beautiful and so characteristic of this country? But now steps in our much vaunted "practical" engineer, who must needs magnify his office. With the everlasting grey stone of the mountains at his feet, he imports for dressings from Scotland a friable conspicuous red stone, and fearful no doubt lest the trolls of the hills resent his intrusion, builds for the glorious housing of his turncock a "romantic" castle, battlemented—parapetted—crenellated—arrow-slitted—machicollated, and, as the crowning feature of his dam wall, itself also battlemented as the curtain of a fortress, he places a "Gothic" tower, which like the castle, exhibits, indeed, as much Gothic feeling as its perpetrator shows perception of artistic fitness. Manchester pays and is happy; the press, headed by the leading Daily, which ought to know better, applauds; not a soul raises a protest, only the thinkers and lovers of nature turn away their faces in disgust from this fresh altar raised to the great latter-day god Vulgarity, to which has been sacrificed ruthlessly, unnecessarily, one of the too few mountain fastnesses of English beauty.

Upon the banks of Winandermere, sacred to greystone, to my mind on one of the most lovely sites in England—there was lately planted a *red* house, bedizened with the too usual accompaniments of carving, fuss, barge-boards, finials and half-timber work, in feeling and colour as foreign to its surroundings as it is meretricious in design. The local mind is awe-struck; the local lodging-house, hitherto curiously inoffensive and unobtrusive in its local material, blending with the greys and greens of the mountains, starts forth now in half a hundred red brick atrocities planted in rigid rank (fitly called the Esplanade) along a concrete wall, which is raised to stay the lazy ripples of the lake—all fronting—and I find herein a nemesis and my only consolation, the drawing-room windows of the original innovator.

Not in one district alone need we seek our examples. The lovely bay of Lynton, in North Devon, has been ruined in a similar way by the "progressive" action of one man. Beautiful upper Thames side has been visited by the plague of villadom with its worst accompaniments, from the spurious picturesque to the supremest misuse of materials which has, I conceive, been accomplished in the history of man.

This is the first and most important problem with which we have to deal—the choice of material. He who sets himself to think out his design first in line, with a view to settling afterwards the material he will employ, may even live to perpetrate a Tower Bridge or a turncock's castle, and will assuredly instruct that all his bills of quantities shall close with the grotesque words, "alternative for the above if terra-cotta is used instead of stone," as he will doubtless feel that the right treatment of a plastic material is to mimic another which is worked by the tool.

In these days of rapid and easy railway transit, the choice of materials is somewhat freer than in the past, and in the great towns where we have already so heterogeneous a spread of building, imported material must be employed. Yet we generally find that in each town there are certain materials which weather better and look better in the weathering than any others, and we should choose not that which we may think gives us the best immediate effect, but that which past experience shows us to have given the best result when the years have worked their changes. But in the country side, Nature's teaching is almost unerring, and in the use of local material lies safety, harmony, and enduring honour. In its own district, a stone wears best, looks best, weathers best. Where there are trees and loam, there a timber construction will have its best value. Native slates for our roof, where such there are. If the district affords no fitting materials for roof or wall, then our choice must be of those which harmonise the best with the character of the country, and our choice can only prove satisfactory if our eyes have first learned to see.

That all materials are equally beautiful, even in their right locality and surroundings, it would, of course, be absurd to maintain. Nature was not in her happiest mood when she gave purple slates to Llanberis—and to Ruabon its clay, with surface and colouring so mechanical and unsympathetic, the invasion of which into the valleys of Wales is a blow to the beauty of Welsh mountain scenery. William Morris once said well that the man who would use Broseley tiles in the country would do any evil thing, and in the same relation as Broseley tiles to the red roofs of Kent and Surrey are the terrible Welsh slates to those of Cumbria, Cornwall, or Devonshire. Yet even the Welsh slate looks less flimsy and miserable and the Broseley tiles less harsh in their own countries than elsewhere. London alone could well have dispensed entirely with a clay which burns a colour suggestive of malaria and disease, vile in its first effect, and viler in use. Yet even here we cannot say whether Nature was in error in the provision, or man in the using. In most cases she is a faithful guide.

It need not make the glaring examples which I have mentioned of mis-used materials in any way less instructive to us that often they are not the work of architects at all—alas! how many examples could be produced from the works of architects also; notably, the poor expedient, to conquer a difficulty so slight, of brick chimneys in a stone country, or a stone structure. In this, again, our fathers have showed us a better way, would we but walk in it, the problem of material and its solution seeming to them so easy, and to us often as difficult as it is all-important.

Bear in mind that I am not asking you to disregard the all-important question of cost, which may, of course, often influence your choice adversely. This also you must perforce heed, but do not leave the other unheeded. Some of the most glaring examples of misapplied materials occur—as in the instances I have given you—where the reverse of economy is the result.

In the towns our first duty should be to study our neighbours, never forgetting the demand upon us for our share of a dignified whole—especially when it is our province to work in the vicinity of an accepted monument—to treat an exceptional site with very special consideration and deference. But few cities can boast a grander river frontage than the banks of the Thames, or a building more worthy of its position than Somerset House; Waterloo Bridge, though not altogether in scale with Chambers' great building, is still a fine creation. What can we say of the erections which rise close by; what of the yellow brick shed raised by King's College on the roof of Somerset House itself; here, at the very heart and centre of London's best possibilities? If the public deals hardly with us in its neglect and oblivion, we, in our turn, have indeed burdened the earth with things unspeakable.

If the Press and the public (who lead each other intermittently by the nose, and call the process mutual influence and education) are wantonly ignorant and indifferent to all matters architectural; if a second-rate water colourist, who has an exhibition in Bond-street, has lavished upon him columns of valuable criticism of pictures that will shortly disappear for ever into the limbo of private collections, while the foremost sites in London may be filled worthily or unworthily by our greatest or our least, and not a glance, not a word, is vouchsafed by this cultured public of ours, or by the organs by which it is so fitly represented, to matters so trifling as mere bricks and stones—still I hold that upon curselves lies the greater burden of blame; this great unseeing public, this dense, dim-sighted Press is to be taught only by object lessons, and these are too often lacking. When our works are as our aspirations, and our streets the ideal dwellings of dignity and grace, then perhaps the denizen of our cities may give his passing "oh" of admiration to other than the vulgarest of erections, and we may hear through the Press of something more than the gracious manner of the Royal Highness who opens the building "of early thirteenth century Renaissance, exhibiting signs of Chinese influence," and of the notable industry of Mr. Snook, the clerk of the works, and Mr. Spook, the builder.

When the finest site in Oxford-street, such as has not been in the market for many a year, is filled by a building in which are all the faults of omission and commission, and the public smile approval and pass serenely by; when the Press is silent, or (if approached) applauds—then we may only conclude that through our own shortcomings we suffer. Let us show our public what good architecture is; let each do his part, however small that part; seek out the principles underlying the greatness of the great architecture of the past and of our own day. This especially, and with discrimination, appreciative and critical. Study our own time, its need and its achievement; observe its excellence, and we need not spare its faults, and then when the crucial test and the happy moment of designing comes, our houses will no more be as "the houses in between," but a part of the City Beautiful which it lies with us to bring into being. True enough, we may not all be inspired—not to each is given the golden

pencil of genius—but, unless we can each be an artist in heart and aim—one who loves the work of creation, and to whom the cause of beauty is the worthiest, one who will give to it the hard work of a lifetime nor grudge an unremitting drudgery uncoupled with large payment; unless we can each be such a man and such an artist we had best turn back and apply ourselves to trading, for architects we can never hope to be. But when we build better, then will the public also see better, then will the public Press grow in architectural intelligence even to the level of our best representative journal, than which no craft or profession can claim a more learned or more disinterested representative and organ.

In our self-education there occur opportunities which I cannot but think we are too prone to misuse or waste, viz., the important aid that such bodies as the Association or the Institute might render by general and genuine mutual criticism of work done, to be done, or in the doing. We are public servants, and must not forget the fact, and should be able to bear both from an educated public and from each other generous and wholesome expression of critical opinion concerning our productions — not, of course, the blind partisanship or the unreasoning opposition of a mere politician, but that criticism which can surely be generous, courteous, and just when passing between members of societies, existing only for the furtherance of our art and of that beauty which is attained by discrimination alone. I have indeed known cases where a clique have pounced upon and rent asunder the works of one man of unusual eminence, whose works stood in the same relation to those of his detractors as does Somerset House to its neighbours already noted. This is not the criticism we need—as bad for the cause of architecture as for the reputation of the critics—but a wholesome school of genuine criticism, where we might unpack our honest doubts and justify our new departures, learning and giving simultaneously the best lessons of our craft. The questions come, of course—"Who is to sit in judgment?" "What is taste?" "What is style?" "What is truth?" The answers equally, of course—that we shall all sit in the judgment-seat when we have climbed the high places of wisdom; that taste is no matter of whim, but the upshoot of knowledge and insight; that "style is," in the words of Mr. Street, "the perfect harmony between the means and the end?" and as to truth in matters artistic, that is not touched by doubt, and fears no discussion. It is the one constant fact that spells art and means beauty, that says to each of us, in the words of Butterfly the Great, "I am not arguing with you; I am telling you."

We must criticise ourselves and each other that the public in its turn may acquire the knowledge to do so, and the Press the desire to understand. In that happy time no building of importance shall rise up without receiving its due of general praise or analysis, and architecture shall again be enthroned in the highest places of honour. Until this time come our 1,200 has not justified itself fully.

The time is not yet, indeed; even the small lay audience we can command has gone astray after strange gods. They desire not quiet beauty, simplicity, and proportion, but what they are pleased to call "the picturesque"—a sad misuse of a desirable term that makes our wholesale condemnation the harder to express. For what is desired is a spurious, wilful inversion of order and dignity, a subordination of proportion to the unusual and the unexpected, the novel. This quality of the picturesque, so full of charm in its natural development, as a delightful, though occasional, incident to the architecture of the past, has been forced into the position of the leading ideal in the architecture of the present. By our public it is now enthroned as a chief glory—indeed, as the one thing needful. We are asked for a profusion of cheap ornament and a forest of irrelevant gables—a "Gothic" porch and an Early English ingle-nook, half-timber galore, crested ridges and paltry finials of terra-cotta or iron, all to be strung together in an impossible whole of disorder and ignorance; and this, forsooth, is "Gothic," this is "the picturesque."

What can we do for the generation which has not alone wrought and loved such things, but which has stolen from us and annexed for its own base uses these words that have meant for us some of our fairest ideals? Hence comes it that the very men who have learnt their alphabet of architecture by the light of the glories of the past, who have studied every stone and joint and moulding of the old work in their care, who hold beauty and the quality which makes for beauty as the dearest and best article of their creed, these very men dare not call themselves "Gothic" lest they should bring upon themselves the reproach of cheap wedding-cake ornament and the shabby-genteel revivalism of ignorance, and would be ready to blush for shame should they be accused of a "picturesque" building. Examples both of the real and spurious are many. To find one where they are well contrasted, we need only look from beneath the trees of Battersea Park to what has been one of the finest reaches of our river, that between the Albert and Chelsea Suspension Bridges. I knew of no finer bit of grouping and outline than the quite exceptional terraces, the charm of which we chiefly owe to two men of genius—Mr. Norman Shaw and the late Mr. E. W. Godwin—with their surroundings of tree and river, and beyond Wren's noble Chelsea Hospital. Here was the genuine picturesque, not aimed at in the individual works, but developed in their total effect.

But the plot of land between the terraces and the hospital has lately come into the market, and a long block of (no doubt) "commodious residences replete with all modern improvements" has sprung up, to the final destruction of the exceptional beauty of the spot. We are compelled to suppose that these buildings aim at the picturesque. They are planted upon the ground like an ill-drawn parabola—the two ends straightened with a connecting curve—no part of it having the slightest relation to the lines of hospital, river, or terraces. Bay-windows, balconies, the inevitable angle-turret, alternate gables with capricious differences of outline, some of them mere shams of elevated brickwork, iron-stayed, a gratuitously broken line of roof, all make up a composition, the like of which may be studied as an example of the power of bricks and mortar to mar a great opportunity and a great site. Chelsea Hospital may have even the better part in the view of the neglected back scornfully turned in that direction. No oriel windows and angle-turrets could be spared for a mere back—to be "picturesque" in front makes all other considerations superfluous, it seems. We have not all such opportunities of slighting our betters as this new block has achieved, yet it may remind us that the backs of our buildings often deserve quite as much study in their degree as do their fronts, for they often become important frontages, apparently unexpectedly to their designers; the back of one of our vast hotels, as seen from Whitehall, is a case in point. Let us simplify our fronts and not overlook our backs. An instance of a well-treated and considered back may be found in a small new building overshadowed by the School Board Offices on the Temple Embankment.

One burning subject remains for our consideration, that of competitions, upon which my predecessor spoke to you last year with special authority and point. He treated the question mainly from the view of the young competitor. May I add a word from the standpoint of architects generally and of assessors in particular. The Institute has again organised a Competition Committee, which it is hoped may exercise a speedy and beneficial influence upon the conduct of competitions. There has been certainly improvement in the last few years, but cases of gross injustice are still too frequently recorded; nor is it apparent to me how any protest, either from ourselves or our representative body, can avail much. We must act, not protest; and we have the matter in our own hands if we will act together. If no reputable architect will become a competitor unless there is first appointed a professional assessor, whose award shall be final; if no reputable architect will become an assessor unless his award is to be so accepted, the matter will cure itself. I know the plausible argument that he who pays the piper has a right to call the tune, but no self-respecting piper will submit himself to the verdict of an ignorant Sassenach who knows not the pipes or the skill of their master; when our public has trained itself to distinguish "The Bonnie Hoose o' Airlie" from "The most disthressful counthry that ever yet was seen," we may be justified in submitting ourselves and our harmonies to a knowledge even so rudimentary. The discovery of any touting on the part of competitors should be at once sufficient ground for the elimination of their names from the rolls of any honourable society. Especially to assessors we might commend the firm attitude suggested, for there is no doubt that a sure and honourable basis for the distinction of true merit by an adequately trained judge would be a real benefit, as much to the public as to the architects themselves.

The Building Act for London, to which this Association naturally look with great interest, seems, on the whole, to be working smoothly, but it is evident that an amending Act, to crystallise it, and set forth the true intention of many of its provisions, will soon be necessary. Many useless disabilities that hampered the progress of architecture under the old Act, have doubtless been removed, and in many respects we now enjoy opportunities for a better class of architecture than was tolerated by the Act of 1855. It should now be our object to induce surrounding local bodies to amend their by-laws in accordance with the better provisions of the new Central Act, as it is obviously bordering on the absurd that what may be legally done in London is still forbidden in Croydon and Willesden, merely because outlying Local Boards are too obtuse to alter or too proud to revise their own bantling by-laws.

To touch upon many points in the brief scope of an address is impossible. I have only laid before you to-night, Gentlemen, a few facts, a few theories, and perhaps a few fads—the facts as necessary as they have, I fear, proved tedious; the theories perhaps both trite and stale; the fads certainly sincere and most honestly uttered. If you find anything helpful in my platitudes, I shall be content. We architects have a great inheritance, and we have a greater responsibility. This world of ours is a naturally beautiful world. Man has it in his power to add to its beauty and to his own dignity in the adding, or to deface it. Which course shall we take? Each of us hopes for the higher, each of us stumbles oftentimes into the lower road. Let each of us look to it that no temptation, no laxity or laziness, no greed of easy gain, and, may I add, no client turn us from the right path. This Association is *Alma Mater* to many of you, and will be as the years go by to an ever-increasing number. As well as the earth on which we build, we dishonour her by any but our noblest efforts; if we give of our best, we are still but debtors.

"My new cut ashlar takes the light
Where crimson-blank the windows flare
By my own work before the night—
Great Overseer I make my prayer.
"If there be good in that I wrought,
Thy hand compelled it, Master, Thine—
Where I have failed to take Thy thought
I know, through Thee, the blame is mine."

Professor Kerr, in rising to propose a vote of thanks to Mr. Caröe, said he had always felt it to be a great pleasure to attend the opening meetings of this Association, which he had done at intervals for about forty-seven years. There was something peculiarly appropriate in the circumstance of the opening of the annual session of architectural work taking place in connexion with this Association. The freshness with which happy subjects were combined in their studies, and treated by comparatively young men in the presence of still younger men, was a very great consideration, and to everyone it would be agreed that they had been favoured with an address characterised by all the excellence due to a cultivated mind and a gracious manner. He would venture to make a few remarks upon the great question of the educational development of the purpose of this Association. The assertion was perfectly true in every sense that the classes organised by the Architectural Association for the study of architecture were practically the best means for devising the real instruction of the young architect. They had, of course, to compete with other agencies more widely supported, but there was a purely practical and serviceable character about the way in which education had always been treated by the Association which could not be disputed. It seemed to him there were three objects with which the classes of the Association were concerned. In the first place, there was the preparation of young men for obtaining the degree of an Associate of the Royal Institute. He was not one of those who attached the greatest possible importance to examinations and diplomas. His mind happened to be defective in that respect, but he did think, speaking most seriously, and in the presence of young men who he hoped would bear in mind what he was saying, that the examinations of the Institute served a purpose which was absolutely indispensable nowadays. Although there were, no doubt, a certain proportion of the young men who, without being intellectually deficient, were not mentally fitted for the work of preparing for and passing examinations, and although some other provision should be made for their recognition, yet the great bulk of the students must

be largely benefited by a course of study which became compulsory, and with a degree at the end of it. He therefore hoped that nothing would be done on either side which should in the slightest degree weaken the connexion between the Association and the Institute. He believed, he would say, as an observant person, and as an old member of the Institute, that there was no member of that body who did not wish well to the Association, and to see it prosper in respect of its educational purposes to an extreme degree. Therefore, if there were any feeling or suspicion of what might be termed jealousy, for want of a better phrase, between the two Societies, let them dismiss it from their minds at once and for ever! The Institute was most kindly disposed towards the Association, and nothing that could be reasonably asked would be refused. The second purpose which the scheme of education of the Association answered was that it prepared young men for the practical work of their architectural business as distinguished from every other consideration. The English people consented to employ a great many architects. For what purpose? Not for high art, for they did not care nearly enough about it, though, at the same time, they would take a little if it were good. But what they wanted the young architects to learn to do was to transact their business of building safely, systematically, economically, and gracefully. The English people might not understand much about it, but what little they did understand they must have fairly considered. That, therefore, was the object of architectural practice, and if one looked at the curriculum laid down by the Committee of the Association, they would find that it had that purpose in view. He would earnestly advise the young men to look at the curriculum of the Association in that light and to join its classes. The third purpose which the educational system attempted to follow out was this, the establishment, to a greater degree, of the principles of artistic grace in buildings. There was a great deal to be done in that direction, but Providence must be given time. Evolution was slow, and they had a long way to go before they became thoroughly sound artistic architects. In order to make a beginning they should join this course of study. They would gain experience in their employer's office, but he did not undertake to teach what the Association did. Bearing these three considerations in mind, he stood as a sincere advocate for supporting the educational scheme of the Association, for no young man who joined its classes would ever regret having done so.

Mr. H. O. Cresswell said that it gave him the greatest pleasure to second the vote of thanks to Mr. Caröe. On such an occasion one was not expected to say anything by way of criticism, but there were one or two points in the new curriculum which he had studied with the greatest possible interest. He, therefore, took the first opportunity of speaking on the subject, because he had had something to do with the re-arrangement of the educational scheme of the Association, when it was altered a few years ago. He would like to say at once that, although in favour of the scheme then introduced, he had not pinned his faith to any particular curriculum, and he thought the Committee were perfectly competent to know what was best for the interests of the Association at the present time. He had, therefore, read their manifesto, in the shape of the new Brown Book with very great interest, for he believed that what they had done was in the best interests of the Association. The institution to a certain extent of the old voluntary system, he believed, would have very advantageous effects, because he did not think it was ever intended that system should be entirely dropped. He did not believe it was ever the intention of the framers of the recent scheme to entirely do away with what had been one of the great successes of the Association, viz., the assistance which the young men derived from the criticism of their fellows, or of those who perhaps were a little bit their seniors. He had also been interested, and perhaps from a selfish point of view, in listening to the words of the President, when he spoke of the examinations at the Institute, and the memorialists. He had had to skate over the rather fine and slippery ice of that much-vexed question, at a time when the excitement of the members did not allow them to look at it in quite the dispassionate way they were able to do now. He would congratulate the President on the charming way in which he had dealt with the subject, which they were now all able to regard in a much more impartial way than they were some few years ago.

The vote of thanks was then put, and carried by acclamation.

The Chairman returned thanks for the kind manner in which his somewhat lengthy remarks had been received. He hoped that Professor Kerr's remarks would be specially taken to heart.

The proceedings then terminated.

Illustrations.

SUNDIAL, WHATTON HOUSE.

THIS Sundial was designed to fit an ideal site in the beautiful grounds of Lord Crawshaw, near Loughborough. It is executed in Portland stone, and the four figures supporting the dial represent the Muses, Clio, Euterpe, Erato, and Urania.

The design is by Messrs. Brewill & Baily, and the drawing was exhibited at the last Royal Academy.

THE CHURCH OF ST. WOLFGANG, ROTHENBURG-OB-DER-TAUBER.

THIS church lies on the extreme north-east of the town of Rothenburg, outside the Klingen Thor, and, in fact, forms part of the outer fortifications of the town. It was founded in the year 1473, and consecrated in 1483. It consists of a nave of three bays and a choir, both vaulted, and it retains still its wooden gallery and pulpit of the sixteenth and seventeenth centuries. The centre altar* is dedicated to St. Wolfgang, and the two side altars to St. Willébald and to the Virgin respectively. Immediately on the left of the entrance is the staircase leading to the watch-tower dwelling, built on the entrance gateway, which suggests that the priest of the church had to keep a look-out, not only on his own church, but on the approaches to the town. Between the two doors giving access to the church is a niche with a well-preserved statue of St. Wolfgang, and above a representation of the Crucifixion. The church is built in the warm-coloured limestone of the district, and on all sides forms one of the most picturesque features of this ancient town, which has preserved its Mediæval aspect to a far greater extent than any other I am acquainted with, even including Nuremburg and Carcassonne.

R. PHENÉ SPIERS.

THE HOTEL CECIL, LONDON.

THE Hotel Cecil, which is one of the largest buildings erected in London by private enterprise, is now so nearly completed as to have determined its owners at once to furnish and open it; and as no description of the building has yet been published, an account of it, with some illustrations supplied to us by the architects, may be of interest to our readers.

The site which the building occupies will be remembered by most Londoners as that of Cecil and Salisbury streets, which ended abruptly to the south in lofty iron railings overlooking the river. The houses, erected for private residences of a good class of people, had become reduced to a poor and dilapidated state, and were recently mostly occupied by second-rate lodging-house keepers. The whole area of these streets once formed the gardens of the house built by Sir Robert Cecil, principal secretary to Queen Elizabeth, and, until it was recently acquired by its present owners, remained the property of his descendant, the Marquis of Salisbury.† The Ivy Bridge-lane, which forms its south-western boundary, was once of such importance, that it formed a subway beneath the Strand to enable the folk about the Convent Gardens and Maiden-lane to reach the river without risking their lives in crossing so busy a thoroughfare. Many there may be still who remember it as the principal way down to the "halfpenny boats," which used to ply between London Bridge and the landing-stage of the quaint old "Fox-under-the-Hill" at the bottom of the lane, until its wharves and mud were buried beneath the Thames Embankment.

After the Embankment had been formed, and while the property was falling into decay, even to the extent of getting "dangerous structure" notices scattered about, many schemes were propounded for dealing with the estate, of which the most prominent was that of a curved road rising from the Embankment level and connecting it with the Strand by Waterloo Bridge. This scheme, which in spite of the rather steep gradients, would have been of considerable public utility, particularly in conjunction with the Strand-to-Holborn street, would practically have ruined the estate and been unprofitable as a private enterprise. At the same time that this scheme was under discussion, Messrs. Perry & Reed, the architects of the Hotel Cecil, prepared another scheme which dealt with the estate as a self-contained property, with unique advantages of site and surroundings, and they opened negotiations with Lord Salisbury's solicitors on the basis of it, with the ultimate result that, after many delays, the whole freehold was purchased from Lord Salisbury by the promoters, who instructed the architects to carry out their original scheme; and this, with but slight internal modifications, has now been done in its entirety.

The peculiarities of the site enabled it to be dealt with in a manner and with advantages almost impossible in any other part of London, and it was singularly free from the dangers of "light and air" rights. Down the whole length of one side arrangements had been made which allowed the buildings on the site to be erected to any height without interference, whilst limiting those opposite, and down the whole length of the other side the freehold belonged to a friendly neighbour who consented to an agreement for the mutual benefit of the estates: and on the south were the open gardens of the Embankment; and, although the blow-holes of the District Railway which adorn them, fall, perhaps, within the angle of 45 deg., no solicitor calling them "skylights" threatened to apply for an injunction. Besides these favourable circumstances, the fall of the ground levels from the Strand to the river presented very great advantages.

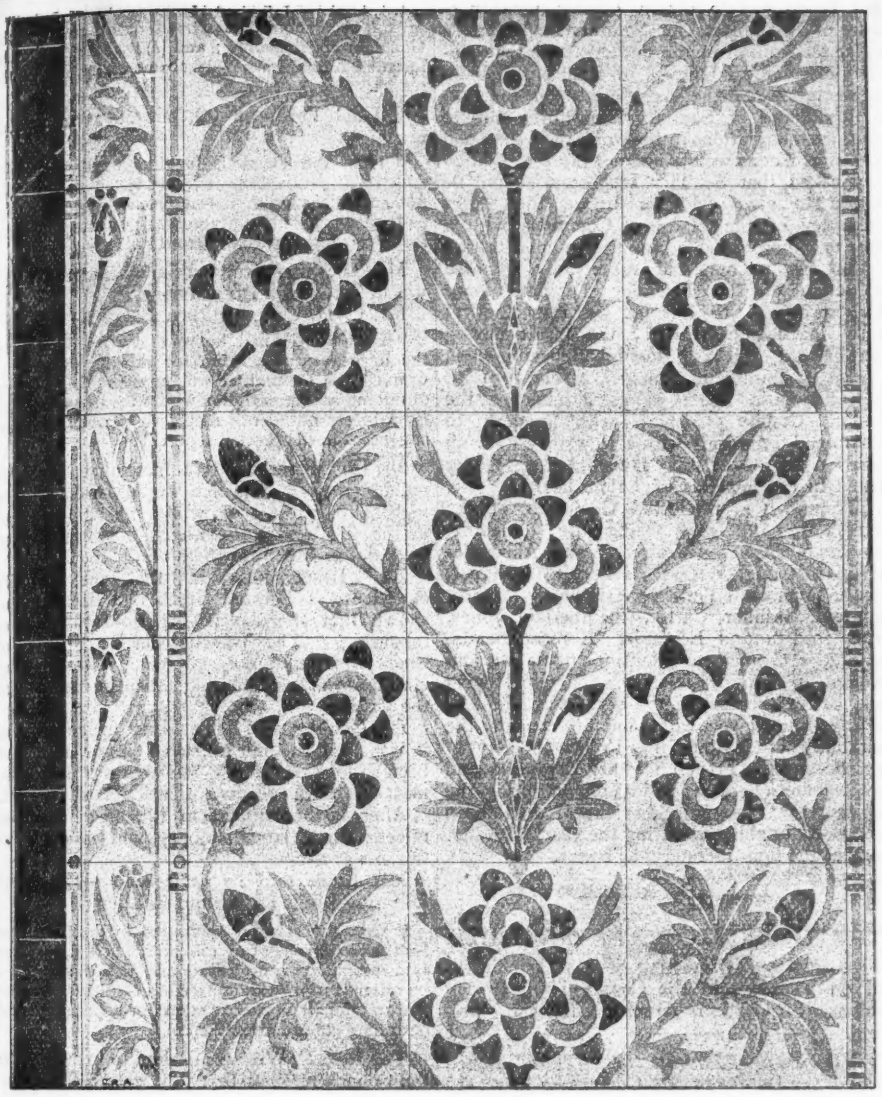
At the north end of the site the Strand is 35 ft. above the Embankment level, and a plateau has, therefore, been constructed of vaults rising to that height, carrying the courtyard which gives access to the buildings from the Strand level, whilst other roads beneath joining the low-level Embankment road permit of all heavy traffic reaching the hotel out of sight and sound.

The area already covered with buildings is about 2½ acres, which has been laid out in three distinct blocks of buildings, connected at various points by corridors and bridges, and surrounding a courtyard 300 ft. long by 80 ft. wide, beneath which the blocks are connected as one building. The blocks are of various sizes, which was to some extent unavoidable, as they had to be planned with reference to the falling in of leases at various dates. The southern block, which is by far the loftiest, contains all the principal public rooms, the chief kitchen and offices for the management and the best suites of rooms; the western block, which is the smallest, will have the smaller dining-rooms and bachelors' quarters; and the eastern block, about the same area as the southern, has larger family suites of rooms, arranged separately in pavilions, and has below two great banquet halls, each with their own receiving, retiring, and smoking-rooms, and so planned that they can be used together for any great function. These rooms can be approached from the courtyard without passing through the hotel, and as they may be occupied by great numbers of people at a time, special exit arrangements have been made by which the inmates can pass directly on to the low-level roads and the Embankment, without intervening staircases, in the event of any alarm. The northern block, which will form the façade towards the Strand, is not yet built, although the freehold of much of the property has been already acquired; but this did not form part of the "Salisbury Estate," or part of the original scheme. The erection of this is now awaiting the passing of a special Act, which, but for the early dissolution of last Session, was expected this year; and when this is completed, and the four sides of the quadrangle formed, the building will cover more than three acres, and will be unrivalled for extent and convenience, as a hotel, in Europe, if not in the world.

In the construction of these buildings, although there is nothing very novel, for the architects have been careful not to try experiments with anybody's patents, there have been a great many difficulties to overcome. The site, although in

* Of richly-carved Late Gothic work, and attributed to Zeitbloom, of Ulm.

† "The next was sometime the Bishop of Carlisle's inn, which now belongeth to the Earl of Bedford, and is called Russell or Bedford House. It stretcheth from the hospital of Savoy, west to Ivie Bridge, where Sir Robert Cecill, principal secretary to Her Majesty, hath lately raised a large and stately house of brick and timber, as also levelled and paved the highway near adjoining, to the great beautifying of that street and commodity of passengers. . . . Ivie Bridge, in the high street, which had a way under it leading down to the Thames, the like as sometime had the Strand Bridge, is now taken down, but the lane remaineth as afore, or better, and parteth the liberty of the Duchy and the City of Westminster on that south side."—Stow's Survey of London in 1598.



Wall Tiling in the Dining-rooms, Hotel Cecil.

other respects so satisfactory, was, for the foundations, abominable. Running sand and running water, with rotten houses standing around on the cliffs of your excavation, and their owners eager to see them plunge into the gulf, are difficulties architects often have to contend with, and here they abounded. In the case of the southern block, where the old buildings, which were removed for it, had been built on the mudbanks, it was found necessary to sink the trenches to a depth of 35 ft.; and these, to a width of 16 ft., were filled up with Portland cement concrete, and above all, over the whole site of the block, a bed of cement-concrete 6 ft. thick was laid, and over the rest of the estate one of 4 ft. thick. A large amount of concrete has been used throughout the buildings, as all the floors and many of the roofs are formed of 7-in. layers of cement and breeze concrete (no one's patent), so that the building is as fire-proof as any building can be, and the hydrants, which are liberally dotted about, are only introduced to give a feeling of assurance not otherwise necessary. Metal has entered very largely into the construction of these buildings; and in all cases cast-iron has been used for columns and staunchions, and rolled steel for the joists and girders, and none has anywhere been used which has not passed the tests and received the certificate of Professor Kennedy. The isolation of the several blocks made it possible to well light and ventilate all the public large rooms from the sides, and not from glass roofs, and thus rendered it possible to build over them. But this advantage entailed the necessity, unless their floors were to be encumbered by many columns, that they should be crossed by heavy girders, and that the ends of these should be adequately supported. It, therefore, became necessary to adopt a purely metal mode of construction wherever the lower floors were planned to be great rooms, and the upper parts divided into smaller ones. Thus the greater portion of the southern block and the whole of the eastern have the superstructure carried by girders and columns quite independent of the walls, which, indeed, could be removed without affecting the upper part. The girders crossing the great halls are of steel plates built up, those of the south block weighing about 20 tons each, and those of the east block about 28 tons each, and their ends are laid loose in cast-iron wall-boxes carried on cast-iron staunchion imbedded in the brickwork of the walls. These staunchions, again, rest on and are bolted down to wide-spreading circular cast-iron bed-plates about 6 ft. in diameter and strongly flanged, sunk their whole depth into the concrete foundations. The upper portion of the buildings over these girders are carried on cast-iron columns, connected by collars, forming one continuous column their full height, carrying trimming joists of steel to receive the smaller joists in the concrete floors. The brick division walls between its various rooms are thus independent of the walls above and below, so that all the division-walls on a floor can be removed without affecting the general construction. The roofs of the eastern and western blocks are entirely constructed of steei joists and concrete; and the great domes of the south block, 60 ft. square, have the angle-ribs sheared out of steel plates strengthened by steel angles.

Of the machinery and mechanical contrivances scattered about some mention must be made. An initial difficulty arose when it was discovered that no water-supply to the top of so lofty a building could be obtained, and this has been overcome by building a series of large supply-tanks in the basement, into which the water is received, and whence, by automatic Worthington steam-pumps, it is lifted to the top of the several buildings as the upper tanks empty, and by their aid also the water required for the hydraulic lifts is re-used and not wasted. The passenger and service lifts are too numerous to mention, but they are all very powerful and rapid, being hydraulic Otis lifts, worked under steam pressure from steel cylinder tanks. For the general heating, some of the cooking, and the working of all machinery except the electric, steam is generated in a series of boilers of the locomotive type, fixed in the southern block. For the electric lighting, plant is now being prepared, and will be fixed in the vaults at the north end of the estate, the shaft being carried up by Ivy Bridge-lane.

To supply a hotel of this size, the question of kitchen accommodation was a serious one, and the extent of the site made it quite impossible to have only one central kitchen; each block has, therefore, been provided with one or more. The most important one is that in the principal basement of the south block, which is a lofty room, with perfect daylight and ventilation, looking on to the Embankment Gardens, and surrounded with all the necessary subsidiary rooms. For the eastern block, to serve the great halls and the rest of the building, there is a range of kitchens 250 ft. long; and, beneath the roadway, by the principal entrance, and over the lower road, a series of still, plate, and other rooms is being constructed, with access directly to each of the blocks.

The accommodation provided in the building is very extensive, particularly in the large rooms for public and exceptional uses. For residents there are in the portion already built some 800 bed and private rooms, without counting bath, dressing, and such-like rooms. These are generally arranged in suites of three to six or eight rooms, each with its bath, lavatory, and w.c., and the usual telephonic and other contrivances so dear to the traveller.

Facing the principal entrance to the south block is the great marble staircase to the main upper floor, and to the floors below on the garden front. To the right is the à la carte room, 56 ft. by 80 ft., and to the left, the reception and drawing-rooms. In front of all these rooms is a terrace, about to be enclosed as a verandah, 230 ft. long, to be used for dining and lounging, whence a fine view of the Thames is gained, from the Tower Bridge to Lambeth Palace, as well as of the gardens below.

Descending the marble stairs from what is the ground floor of the Strand level we reach the principal floor of the garden front, which contains the large table d'hôte room, 90 ft. by 56 ft., the smoking and billiard rooms, and a smoking lounge, 100 ft. long, overlooking the river. Below this floor again, but level with the Embankment, there is at the east end another large and lofty public room with reception and other rooms *en suite*, with a main entrance from the road in front of the Savoy Hotel. At the west end are the kitchens already mentioned.

The general style of the building has been governed more or less by that of the neighbouring Adelphi architecture; the scale is necessarily greater; but in details of internal finishings, such as joinery and plaster work, much of the style of the Adelphi work has been reproduced. There is, however, one important variation from this in the treatment of the principal garden floor, containing the table d'hôte and smoking-rooms. Here the immense size of the rooms, with the comparatively low height of 17 ft., precluded the adoption of anything like classic proportions, and the architects, after much consideration, adopted an exotic style. The whole of the moulded decorations throughout have been adapted from the details of the Emperor Akbar's palace at Futtipore Sikri, the iron columns being encased in moulded and glazed earthenware, of which also the window canopies and chimneypieces are formed, and the walls are covered with hand-painted tiles with a soft broken glaze almost equal to ancient Persian. The glazed earthenware is coloured in large masses of bright colours, yellow, blue, green, and red, which standing in relief against the large areas of wall tiling in soft blues, produce, though some might not expect it, a very harmonious effect, The ceilings are kept in very low relief, with gilding on a cream-coloured ground, and a small honeycomb cornice in bright colours separate the plaster from the majolica.

There is a great deal of well-executed painted decoration already finished, but the most important yet completed or in hand, except only the Indian work, has been executed in marble. Marble mosaic pavements are freely used everywhere, but the principal one is found in the main entrance hall and vestibule, where the greater part is executed in "opus Alexandrinum" in choice marbles, as in so many Roman churches, and other portions in the peculiar scallop ornament found in the baths of Caracalla. The staircase which leads up and down from the entrance, a height of about 75 ft., is laid with marble steps on concrete, the walls are revetted with marble in courses, and all the balustrades and every part showing is of marble. The marbles here used were Sicilian, Castelpoggio, Jaune Lamartine, Pavonezza, &c.; and all the columns and pilasters are monoliths. A similar staircase, not so large, but perhaps more ornate, and with Connemara marble introduced, is being erected in the eastern block. The chimney-pieces of the ground floor are all in marble,

and the columns supporting them are also monoliths.

The main building operations have been carried out by only two firms, Messrs. J. W. Hobbs & Co., who executed the southern block, and Messrs. Perry & Co., who have finished the western block and will shortly have completed the eastern one.

The following are the names of the firms who were employed on special departments of the work :—Boilers and engineering, Messrs. Slater; lifts and pressure-tanks, the Otis Elevator Company; heating, Messrs. Rosser & Russell; internal plumbing, Mr. Bone; ornamental plastering, Mr. Spencer; marble staircases, Messrs. Farmer & Brindley and Messrs. Wilkins; marble mantelpieces, Mr. Bingham; Opus Alexandrinum pavements, Messrs. Patteson; general mosaic pavements, Messrs. Diespeker; iron and steel work, Messrs. Handiside, Messrs. Lysaght, Messrs. M. T. Shaw, Cadogan Ironworks, &c.; painted decorations, Messrs. Cuthbertson; majolica and painted tiles, Messrs. Doulton; hydrants, Messrs. Stone; electric-wiring, telephones, &c., Messrs. Verity.

The whole of the works have been carried out under the superintendence of Mr. W. T. Winslade as clerk of the works.

Messrs. Perry & Reed have been the architects of the works from their commencement; all drawings, quantities, and full-sized details of construction and decoration have been prepared in their office by them or their own staff; and they have been fortunate to have had associated with them as professional experts Professor A. B. Kennedy, who has had to calculate for and supervise the whole of the metal-work, Messrs. R. Hammond and Morgan Williams, electricians, the former of whom has in hand the control of the electric plant, and the latter who superintends the general distribution of the electricity; and Mr. Henry Carter, who has had to deal with the difficult and important problem of the ventilation.

Our illustrations show by the plans of the Embankment and Strand levels the general arrangement of the rooms on those two floors, but the most important rooms of the southern block are intermediate to these. From the drawing of the proposed Strand front, which will be carried out next year unless the promoters fail to obtain their Act, it will be seen that the main entrance to the courtyard will be by a spacious archway in place of the present small roadways of Cecil and Salisbury-streets; and as it is provided by the Bill now before Parliament that the frontage line will be set back considerably, the scheme will become, when carried into effect, by the widening and embellishment of the Strand, a considerable public improvement.

THE SANITARY INSPECTORS' ASSOCIATION.

The thirteenth annual meeting of this Association was held on Saturday last at Carpenters' Hall, London-wall, the meeting being presided over by Mr. H. Thomas. The first business was the admission of new members, fifty-nine out of sixty-three new applications being approved, besides the nominations as honorary members of Mr. W. H. B. Fletcher, Mayor of Worthing, and Mr. G. F. Baker, Mayor of Maidstone, which were accepted with acclamation. The Chairman then read the annual report. The principal topics referred to were the very successful conference held at Worthing in the summer, the visit to Paris, on the invitation of the French Society of Sanitary Engineers and Architects, various deputations to the Local Government Board and the London County Council, and the proposed new constitution of the Association. With regard to the last point, the report stated that the members of the branch associations of Yorkshire and Manchester, formerly affiliated to the central association, had accepted the principle of direct membership, that the Staffordshire and North-Western branches had the matter under consideration, but that the Liverpool Association still held aloof. In the interests of Sanitary Inspectors throughout the kingdom, the hope was expressed that the Liverpool, as well as the other associations, would still unite with the central body in forming a united and influential national association powerful enough to adequately protect the interests of all Sanitary Inspectors. The deputations to the Local Government Board were influentially supported and well received, but the change of Government had retarded the realisation of the benefits that might otherwise have been expected to result. The object of the interviews with the late President of the Local Government Board was to obtain greater security of tenure of their officers for Sanitary Inspectors, a similar recognition by the authorities to that conferred on Medical Officers of Health, to obtain representation for the Association on the Examining Board of Sanitary Inspectors, and to obtain such alterations in the working of the Food and Drugs Act as would make it more workable. They asked that Sanitary Inspectors should be allowed to give evidence before the Select Committee of the House of Commons with a view to improvements in the administration of the Act. They had successfully opposed the action of the Hackney District Board which proposed to appoint six inspectors at totally inadequate salaries, the result having been that the Hackney Board had been obliged to raise its minimum from 91*l.* a year to 104*l.* They had also made representations to the London County Council with regard to "combined drainage," with a view to obtain an alteration in the existing law, which was badly wanted in the interests of public health. Mr. H. Thomas was re-elected Chairman of the Council, the following being the remaining members elected: — Messrs. West, Alexander Fairchild, Greig, Wilson, Jacklin (Maidstone), Young, Watson, Pettitt, Ashdown, Munro, Lightfoot, Skinner, Carter, Chamberlain, Jones, Strutt, Jordan, and Edwards. A recommendation of the Council, to admit members without payment of entrance-fee, on application being made before the end of the year, was adopted, and the Council was called upon to consider the desirability of inviting the French Society of Hygiene and the French Sanitary Engineers and Architects to a conference in London during the ensuing year. A monthly journal had been successfully established during the year, with Mr. Tidman, the hon. secretary, as editor.

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday, in the County Hall, Spring Gardens, Sir Arthur Arnold, Chairman, presiding.

The Widening of Ludgate Hill.—The adjourned report of the Improvements Committee in regard to the widening of Ludgate Hill, which we printed in our last issue, page 256, was agreed to without discussion.

The Somers Town Insanitary Area.—The Public Health and Housing Committee recommended that the requisite resolution should be passed, under Section 4 of the Housing of the Working Classes Act, 1890, for dealing with the Churchway (Somers Town) area. As was explained in our last issue, the scheme deals with the houses in Churchway, Wellesley-street, Elizabeth-court, and York-buildings, and provides for the formation of a 40-ft. road along the existing line of Churchway, widening on its western side from Grafton-place to Drummond-street, and thereby converting three *cul-de-sacs* (Grafton-street, Wellesley-street, and Lancing-street) into thoroughfares. The estimated cost of acquiring the properties is 52,000*l.*, but it is anticipated that there will be a recoupment amounting to 6,800*l.* Including paving works, the total net cost of the scheme is estimated at 51,650*l.* Lady Henry Somerset, however, the Committee reported, has agreed to defray all expenses in respect of her own property; and by this means the cost to the Council will be reduced to 39,150*l.* The number of persons to be displaced is 1,086, and accommodation for about 568 can be provided on the cleared site.

After some discussion, the recommendation of the Committee was agreed to.

The Strand Insanitary Area.—The adjourned report of the same Committee, recommending the adoption of a scheme under Section 4 of the Housing of the Working Classes Act, 1890, for dealing with the Strand insanitary area, was next considered. In our last issue will be found particulars of the scheme, which involves the clearance of (1) the area lying between Drury-lane, Stanhope-street, Blackmore-street, and Kemble-street; (2) the area lying between Clare-street, Clare Market, Houghton-street, and Stanhope-street; and (3) the area lying between White Hart-street, the Strand, Drury-lane, Drury-court, and Helmet-court. As has been pointed out, the total number of persons to be displaced is 3,038 (of whom it is proposed to rehouse 500 on the area and 1,269 on the Millbank Prison site), and the total net cost of the scheme is 216,500*l.*

The formal recommendations of the Committee were—

(*a*) That the requisite resolution under Section 4 of the Act should be passed, and the seal of the Council affixed thereto; and (*b*) that the solicitor be instructed to draw up a scheme on the lines of the report.

Colonel Ford, on (*a*), moved as an amendment :—

"That the Council, looking to the demands which will probably be made upon it next year, is not so satisfied with the sufficiency of its resources as to feel justified in at present preparing a scheme for improving the area referred to."

Mr. Thornton seconded the amendment, which was defeated by a large majority.

Mr. C. H. Campbell then moved :—

"That the Council hopes that when drawing up the improvement scheme for the approval of the Council the Committee will consider the propriety of finding accommodation within the area in question for a larger number of displaced persons than that suggested in the present report."

Dr. Cooper seconded the amendment. In his opinion a great injustice would be done to the persons to be displaced, who were mainly engaged in the theatres and markets, if accommodation were not provided for them on the spot.

Mr. Beachcroft said that the Council's experience at Bethnal Green and elsewhere had shown that there could be no such thing as rehousing. The persons displaced from the slums would not go into model dwellings, but families from neighbouring tenements moved into the blocks.

Dr. Gooding said he could not understand how it was that the much-needed improvement had been so long deferred. The area was one of the most disgraceful scourges that London possessed.

After further discussion the amendment was rejected by a large majority, and recommendation *a* was adopted.

Mr. Bruce said he desired to substitute the following words for recommendation (*b*) :—

"That the scheme submitted by the Committee for the improvement of the area referred to in the said resolution be approved and sealed, and that it be referred to the Committee to complete the scheme and to take all necessary steps for depositing it and obtaining confirmation thereof."

The Rev. F. Williams desired to know whether the Council realised that if it passed the recommendation in its altered form there would be no further opportunity of revising the scheme.

The recommendation in its altered form was adopted, and the formal resolution to which it referred was carried.

Churchyard Bottom Wood.—The Parks Committee reported that the Hornsey Urban District Council had informed them that the Ecclesiastical Commissioners had intimated their willingness to sell to that Council the Churchyard Bottom Wood, Highgate, for the sum of 25,000*l.* The wood, which had an area of about fifty acres, was nearly on the boundary of the Hornsey district, and it was suggested that its acquisition for the purpose of a public pleasure-ground would benefit the surrounding districts even more than Hornsey. For that reason the District Council asked the Council to contribute a sum of 5,000*l.* towards the purchase-money. As, however, Hampstead Heath, Parliament Hill, and Waterlow Park were all within a short distance, and the wood was outside the County of London, the Committee recommended—

"That the Council do inform the Hornsey Urban District Council that it is not prepared to contribute towards the purchase of Churchyard Bottom Wood."

Mr. Idris moved to refer the recommendation back, contending that money could not be more usefully expended than in securing the wood.

The amendment having been seconded, was agreed to by a large majority.

The Water Question.—The Parliamentary Committee reported that they had been considering what course should be adopted with reference to the Council's Water (Transfer) Bills, which had been suspended in July in view of the Parliamentary dissolution; and they recommended :—

"That, desiring that the supply of water in the Metropolis and the surrounding districts should be in the hands of a public authority, and with a view to a complete agreement with all parties concerned over the entire area supplied, the Council do invite H.M. Government either to deal with the question themselves or to appoint a Royal Commission to do so."

Col. Hughes, M.P., brought up the Report on behalf of the Committee, the Chairman of that body (Mr. McKinnon Wood) being in disagreement with the recommendation. He expressed his anxiety to see created a composite water authority, representing all parties interested.

Mr. Stuart, M.P., moved the following amendment: "That the Bills for the purchase of the London water companies be proceeded with." He pointed out that the recommendation of the Committee involved a complete change of front on the part of the Council. Had not Sir M. White Ridley's influential Committee already fully inquired into the question, and was it not to Sir M. White Ridley, as Home Secretary, that the matter would have to go if the recommendation of the Committee were carried? That Committee had reported in general agreement with the proposal embodied in the Council's Bills, and had gone so far as to say that the Council should be the water authority if it so desired. He would ask the Moderates one simple question. Did they propose to offer the companies better or worse terms than those offered in the Bills?

Mr. McKinnon Wood seconded the amendment.

Lord Onslow contended that no Conservative of the House of Commons would accept the clause in the Bills which involved open arbitration, and which would necessitate an expenditure of sixty or seventy millions sterling. Then there was the important question of who should be the water authority. The Progressive party thought the Council should be that authority, but had it not already enough to do? Was the Council really capable of doing the work now performed by the water companies, assisted by at least one hundred clerks? It seemed to him that it must be referred to a Royal Commission to decide who should be the water authority, and to consider the terms of arbitration and the question of an additional supply.

Sir John Hutton thought it was quite unnecessary to ask for a Royal Commission, and he reminded the Council that it had already spent 4,000*l.* in connexion with the matter. He held that the Council was coming too near a solution of the water question to satisfy the water monopolists. There had been enough Royal Commissions on the subject in all conscience, and what was now wanted was an Act of Parliament.

Mr. Westacott said there was an agreement on both sides of the Chamber that the water supply ought to be out of the hands of private companies and in the hands of a representative authority. There was no prospect of the present Bills passing a second reading, and he believed the Government would be quite prepared to deal with the question.

Lord Farrer felt that, under present circumstances, if the Council proceeded with the Bills it would have to pay an extravagant sum for the undertakings, and would afterwards be compelled to face the additional expenditure, which the companies would otherwise have to face, necessary to establish a supplementary supply. In his opinion it would be futile to proceed with the Bills, and he was inclined to think that the wisest thing to do would be to go on with the investigation as to possibilities connected with a supplementary supply. He had not much faith in another reference to the Royal Commission, but it might be advisable to leave the matter in the hands of the Government.

On a show of hands there voted—For the amendment 50, against 48. On a division there voted—For the amendment 53, against 54.

On the motion of Dr. Collins the debate was then adjourned.

Appointment of an Estimating and Measuring Surveyor.—On the recommendation of the Works Commitee Mr. A. S. W. King was appointed to the vacant post of Estimating and Measuring Surveyor in the Works Department.

The Council adjourned soon after seven o'clock.

ARCHITECTURAL SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—At the galleries of the Royal Society of Artists, New-street, a conversazione was held on the 11th inst. (by permission of the Committee) to inaugurate the twenty-second session of this Association. Mr. William Henman, the President, received about 150 guests at 8 o'clock, and distributed the prizes to the successful students attending the various classes of the past session. Mr. E. F. Reynolds gained the first prizes for an illustrated essay upon Mr. Bidlake's history lectures, and for the best set of sketches made on Saturday afternoons and on the summer excursion to Ludlow and neighbourhood, Mr. H. Guest taking the second prize in the former, and Mr. A. E. McKewan in the latter competitions. For the best set of designs prepared in conjunction with Mr. Bidlake's class at the School of Art, Mr. James A. Swan secured the first prize, and Mr. McKewan the second. Mr. W. J. Prichard was successful in the class for construction; and for the best set of sketches made at the evening class under Mr. E. C. Bewlay, Mr. McKewan was first and Mr. H. Norman second. An interesting collection of students' work and sketches, also drawings by London and Birmingham architects, were hung on screens in the small circular room.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The second annual conversazione of this Society took place in the Cutlers' Hall on Wednesday last week, and was attended by upwards of 300 persons. The Sheffield artists again extended to the Society the privilege of using their exhibition rooms, and the guests were able to view the collection of paintings which have been brought together. There were also on view the students' work in the designing and sketching classes of the Society, and the books, drawings, pictures, and engravings which had been kindly lent. The President, Mr. C. Hadfield, delivered his inaugural address, part of which we printed last week, page 260. Subsequently the President distributed the students' prizes.

GLASGOW INSTITUTE OF ARCHITECTS.—The annual general meeting of members of the Glasgow Institute of Architects was held in the new rooms, 187, Pitt-street, on the 15th inst. Mr. T. L. Watson, President, in the chair. The Secretary (Mr. C. J. MacLean) read the twenty-seventh annual report of the Council on the affairs of the Institute. It stated that the past session had been one of great prosperity. There were now on the roll sixty ordinary and ten honorary members. The finances were in a very satisfactory position.—The Chairman, in moving the adoption of the report, said he had to congratulate the members upon their first meeting in these rooms, as well as upon an accession of new members during the past session, which made their numbers larger than at any previous period in the history of the Institute. The leading purpose for which the Institute had been constituted was, according to the articles of association, "The advancement of the art and science of architecture." A good deal was implied in these words. The advancement of architecture was, and must ever be, bound up in the advancement of the other arts and in the intellectual and social advancement of the country. It was natural, therefore, that they should acknowledge and seek alliance with some of those who had contributed to this intellectual and social advancement, and with some of the most distinguished workers in their own and other arts. They had seen a wonderful revival in some of the arts connected with architecture—to quote a notable instance, the art of glass-painting or stained glass. There were other arts, less important it might be, but still valuable, which had become almost extinct within the last hundred years. He did not attempt to enumerate them, he mentioned only one or two. They had no workers in lead such as they had had in past times. Up till early in the present century the worker in lead was an artist, now he was a registered plumber. With all possible respect for registered plumbers, and the useful and excellent work they did, he suggested that an exhibition of old artistic lead work, if such could be got together, would be something of a revelation to lead-workers and to many others besides. Take, again, cast-iron, which was largely produced in the neighbourhood of Glasgow, would anyone assert that our ironfounders generally knew anything of cast-iron design? And so with other departments of work. He believed that small and carefully-selected exhibitions would have a highly educative influence both on architects and their collaborators in the work of construction and decoration. Many other departments of work would occur to each of them in which an exhibition of select examples, while not sufficiently interesting to attract the public, and while not intended to attract them, would for that very reason, it might be, prove more valuable to workers in the arts. They were sometimes asked why they did not emulate or excel the greatest works of other ages. It was a shallow reproach, and one that they might retort upon those who used it. Architecture was not merely the work of a few individual constructors and designers whom they called architects; more than any other art it was the expression of the life and habits, the character and genius, of a people. It was the history, and perhaps the only perfectly true history, of its own time. Did anyone suppose that the cathedrals and churches of the Middle Ages, the castles and palaces of the Renaissance, were merely the work of a few brilliant and accomplished architects? Did they not see in them a whole people moved by a common impulse? Architecture at its best was always national as well as individual, and he did not believe that anything national could be produced otherwise than by a nation. A national art could not grow up in the midst of national indifference. There were not wanting signs of hope for the future, and they could only go on and do their utmost with the work at their hands.—Mr. W. Forrest Salmon seconded, and the report was adopted. The treasurer's statement was also submitted and approved, and members of the Council appointed. In the evening the members of the Institute inaugurated the occupancy of their new premises in Pitt-street by holding their annual dinner. Mr. T. E. Watson occupied the chair. Dr. R. Rowand Anderson gave the "Glasgow Institute of Architects." On behalf of the Architectural Association of Edinburgh he wished them every success in their new house. The Chairman, in reply, remarked that it was a great satisfaction that the Institute had become residents of these premises, and he had no doubt that it would lead to developments in many directions. He was afraid that architects and kindred bodies were working under somewhat adverse conditions in these days. They had got into a great age of machinery, and developments in that direction had blinded a great many people to the claims of art and the attractions that art had to offer. They had learned to travel at the rate of 50 miles an hour, and perhaps they might learn yet to travel at the rate of 60, 70, or 100 miles an hour. There was a danger of the value of such achievements being overestimated. He went on to allude to the various improvements that had been effected in these times towards the greater comfort and longer life of the people, and held that in that connexion architecture could perform an important function. It was the function of architecture to make those lives enjoyable, to give people good houses, healthful houses, and to lead them to appreciate those attractions which architecture, sculpture, and the other arts were so well calculated to afford. The other toasts were—"Merchants' House and Trades' House," "Painting and Sculpture," "The University," "Glasgow School of Art," "Kindred Societies," and "The Secretary."

THE GLASGOW ARCHITECTURAL ASSOCIATION.—On Saturday afternoon last the Glasgow Architectural Association opened their new rooms with a musical promenade and Arts and Crafts Exhibition. The President (Mr. A. N. Paterson, M.A.) welcomed the members and their friends to the rooms, and stated that while the Association was nearly twenty years old, through the impecuniosity of youth, it had not been able sooner to have accommodation worthy of its members or of the profession, but by combining in the sharing of premises with the older body, the Institute of Architects, that difficulty had now been overcome.—Thereafter the large company present were treated to a musical programme. The exhibition in the art section comprised water-colour sketches, measured drawings, &c., from Scotland, England, and the Continent, contributed by Messrs. Conyer, Craigie, Fulton, Gillespie, Greig, MacIntosh, McGibbon, Muirhead, Mitchell, Paterson, Stewart, Stoddart, Salmon, and Whitelaw, all members. The craft section comprised antique furniture, brass lamps, door-knockers, Chinese bronzes, vases, brasses, &c., by Mr. W. B. Paterson; leaded glass by Messrs. Stephen Adam, J. & W. Guthrie, and Paterson and Thomson; bronze panels, &c., Messrs. Kelloch Brown, William Sheriffs, and A. M. F. Shannon; brass and copper work by Messrs. Buchans & MacIntyre, and M'Geoch, Kemp & Co., and others. The rooms are conveniently situated in the city, and comprise on the ground floor a hall for meetings, &c., smoking-room and library, where the members may meet daily and discuss all matters relating to architecture, and in the basement the caretaker resides, from whom members can obtain light luncheons daily. It is intended having all the latest information relating to contracts, competitions, and situations, and also regarding the latest books published on specific subjects.—A lecture was delivered in the Rooms on the 8th inst., by the Rev. David Watson, who took as his subject "Some recent features in the architecture of Scottish churches." Mr. A. N. Paterson, M.A., presided. After some remarks upon the inartistic character of the generality of Scottish churches, and the main causes which had induced that unfortunate condition of things, the lecturer made reference to the architectural revival which had begun in these days. He held that much more could be done by the church

authorities in guiding and supervising the enormous church building that is going on, and laid stress upon the inartistic and architecturally impoverished buildings which are everywhere being run up, only to be reconstructed in the course of twenty years. At the close Mr. Watson was heartily thanked for his lecture.

Architectural Section, Glasgow School of Art.—The opening lecture of the session, on the "History of Architecture, with the Characteristic Features and Detail," was delivered on the 15th inst. in the school by Mr. W. J. Anderson, architect, and Director of this department. In introduction the lecturer spoke of the importance of the study of race in relation to architecture, the developments of which might be more broadly understood by some acquaintance with ethnology. The science of race, on the other hand, has very much light thrown upon it by architectural remains, which, as a means of ethnological research, was not less valuable than the study of language. Referring more particularly to its bearing on art, it was pointed out that the yellow race—Egyptians, Chinese, Japanese, Turks, &c.—had a natural gift for colour, which the Aryan, however taught and refined, could scarcely hope to equal; nor in architectural magnificence had the Aryan approached the temples of Thebes or the Taj Mahal of India, the work of Turanian peoples. In Western Europe the Celtic branch of the Aryan family is the most naturally artistic, and where it crops up there is always a tendency artward. The evanescence of art periods in Europe, contrasted with the fixity of Turanian art—as *e.g.*, in Egypt and China—seems to indicate that the Indo-Germanic races are artistic only when mixed with other races in certain proportions, and that when the reversion to Aryan type sets in, and it becomes predominant, art disappears, at least for a time. The second part of the lecture was devoted to a description of Egyptian architecture under the division of (1) the pyramid-building epoch; (2) the obelisk and rock-cut tomb: (3) the temple period; (4) the Ptolemaic and Roman era—the whole duration being nearly 4,000 years, a marvellous identity of design being preserved throughout. The lecture was illustrated by a large number of diagrams and blackboard sketches.

Correspondence.

To the Editor of The Builder.

BUILDERS' CLERKS' INSTITUTION OF GREAT BRITAIN.

Sir,—It is now definitely determined to start this Institution. It is proposed to hold a meeting at Cannon-street Hotel, at four o'clock, October 26 next, but to enable this to be done, all those intending to join should please write to the undersigned at once; a full prospectus will be sent on application. The object of the Institution will be to assist good and reliable men to obtain engagements with firms in London and the Provinces at fair and equitable wages, and to enjoy other benefits which will be fully detailed in the prospectus.

Henry Starkey.

Acacia Villa,
Queen's-road, Wimbledon.

Sir,—There has been during the past few weeks some correspondence in your issues *re* a "Builders' Clerks' Association"; but prior to the letter in your journal of the 21st ult. it had been decided to form such an association in this city, and to extend its benefits throughout the country.

On Saturday last a council was held at the Great Western Hotel, Birmingham, with the result that the Association was floated, a committee formed, and secretary appointed. In justice to ourselves, and to avoid misapprehension at the outset, I may state that it was not formed to oppose employers, but with a view to render mutual assistance both to them and *employés*.

I shall be pleased to furnish full particulars to anyone on application.

W. G. Letts, *Secretary.*

4, Alvester Villas, Deakin's-lane,
Hay Mills, Birmingham.

Sir,—May I ask the favour of a small space in this week's issue to say that I am in full sympathy with the proposal made by Mr. Bowditch, and taken up by others, as to the need of an Institute for Builders' Clerks.

From my experience in different parts of the country, I hear the desire now and again expressed, by some one or other of the great number of builders' clerks and assistants, for such an Institute or Society.

One or two points I consider of great importance for consideration by those desirous to form such an Institute, viz.:—

1st. It should be a "National" Society, *i.e.*, to include all engaged on the office staff of a builder's business, whether in town or country; we in the country require aid often enough, quite as much as those in London.

2nd. It should be limited to *bonâ-fide* builders' clerks and assistants, and open to all such.

I believe it is proposed shortly to call a meeting in some centre in London to take action, and all who are prepared to join will do well to send in their names at once and attend the coming meeting. Let us have a good start, and in the right direction.

"North-West Kent Man."

A QUESTION OF URBAN BUILDING LAW.

In the Urban District of W. D., G erects new houses on a site which has a frontage to three streets, G is therefore bound by the Urban Authorities to keep his houses in a line with the present buildings in each street.

G, by keeping his houses to the line as required by the said Urban Authority, has a space of ground 9 ft. wide between his houses and the public footpath, can G enclose his ground by erecting a boundary-wall 7 ft. high?

Would a boundary-wall be considered a building within the meaning of the Street Building Act, 1888.

"W. B. K."

[Section 3 of the Public Health (Buildings in Streets) Act, 1888, appears to forbid the erection of such a wall without the written consent of the Urban Authority.—Ed.]

The Student's Column.

METALS USED IN BUILDING.—XVI.

COPPER ALLOYS.

Alloys of copper form a very extensive and useful series of metals, of which brass, bronze, bell-metal, and phosphor bronze are more particularly important for our present purposes. Before describing these, it will be well to briefly state the effect of certain metals and non-metals on raw copper, so that some idea may be gained as to the metallurgy of the substances. Pure copper is not found in the market except as a curiosity, and although the better kinds are much purer than they used to be, it may be taken for granted that small proportions of antimony, arsenic, iron, and sulphur, are almost always present.

Copper and Arsenic.—The union of these two metals produces a white alloy; when the proportion is 1 part arsenic to 10 of copper a metal much harder than copper results, which is practically untarnishable, though not so malleable as copper. The great advantage of the union, with the employment of a smaller proportion of arsenic than that mentioned, is the sound ingots of copper that may thus be obtained, which can be rolled cold and subsequently drawn into wire. A large proportion of arsenic renders the metal brittle.

Copper and Lead.—As an improvement in developing the rolling properties of copper, minute proportions of lead up to about one-quarter per cent. are occasionally added to the metal.

Copper and Zinc.—The union of these two metals in varying proportions makes brass, which will subsequently be described. It is believed that under certain circumstances true chemical combination results. The general effect of adding zinc is to render the copper lighter in colour, whilst a fibrous structure is imparted.

Copper and Iron.—On the whole, even small proportions of iron cause copper to become harder, more brittle, and more infusible; but the most serious objection is the unfavourable effect it has on the malleability of that metal.

Copper and Tin.—This forms a highly interesting and important group of alloys, including speculum-metal, bell-metal, gun-metal, bronze, and britannia-metal. When 2 parts of copper are alloyed with 1 of tin, the mass, on cooling, is found to possess properties which differ from either of those metals, being nearly as brittle as glass, and of somewhat silvery appearance. On the other hand, when 90½ parts of copper are united with only 9½ of tin, the resulting metal is harder and more fusible than copper, and tensile strength is developed to a remarkable degree. The general effect of tin is to harden copper, but it does not affect the working properties of that metal when added only in minute quantity.

Copper and Antimony.—Antimony imparts a yellowish-grey tint to copper, and even in small proportions causes it to become hard and brittle.

Copper and Nickel.—German silver is a good example of the use of nickel, being essentially composed of that metal with copper and zinc. Nickel cannot be satisfactorily alloyed with the other constituents by fusing the whole together. That may be done by melting the copper and nickel together first, and then adding the zinc. Nickel silver after cooling from a state of fusion possesses a coarse crystalline structure. The alloy was probably discovered on smelting the ore found at Suhl, in Germany, which ore contains the three essential metals mentioned. Both nickel and cobalt render copper lighter in colour, harder, and less malleable.

The addition of phosphorus promotes soundness in casting, and increases the fusibility and hardness of copper; alloyed with silicon in small proportions of the latter the resulting metal is tougher and harder than copper alone.

BRASS.

We shall now select for detailed description some of the more important copper alloys, commencing with brass. The so-called brass of the ancients appears to have been a mixture of copper and tin instead of copper and zinc, and it was, therefore, a species of bronze, or bell-metal. Zinc would seem to have been first employed for this purpose about the Christian era. Prior to the year 1780 brass was manufactured by cementing granulated copper, called "bean-shot," or copper clippings, with calcined calamine (native carbonate of zinc) and charcoal in a crucible and exposing them to bright ignition. Three parts of copper were used to three of calamine and two of charcoal. The zinc, reduced to the metallic state by the agency of the charcoal, combined with the copper into an alloy, which ultimately formed a lump of brass at the bottom of the crucible. Several of these, being remelted and cast in moulds, constituted an ingot of brass for the market. But at a later date the metal was made by the direct fusion of its two metallic elements, which is the basis on which modern methods are worked. There are so many kinds of brass, however, and they are produced at the present day by so many modifications of the process, that we could not do justice to the modes of manufacturing them, even if the whole of the articles of this series were devoted exclusively to that metal. The importance of brass in the building industries need not be insisted upon; it is used practically everywhere. It is usually described as an alloy of zinc with twice its weight of copper, but such a mixture is rather a standard of what the metal should be than a fair sample of the brass of the builders' ironmonger. As usually sold by these latter it had better, perhaps, be described as a yellow substance made of anything which might be capable, by simple treatment, of yielding a metallic lustre.

Professors Bloxam and Huntington state* that the colour of the alloy of zinc and copper is dependent upon the proportions in which the metals are employed. Those alloys which contain more than 80 parts of copper in 100 exhibit a reddish yellow colour in which the red predominates as the quantity of copper increases, the colour becoming yellow when less than 80 per cent. of copper is present. If the amount of copper be less than 30 parts in 100 the alloy is no longer yellow, but approaches more nearly to the colour of zinc. Considerable confusion exists in commerce as to the nomenclature of the varieties of brass, many of which, though bearing different names, are practically alloys of similar character. For instance, Dr. Percy says† that the terms *Tombac*, *Prince's Metal*, *Similor*, and *Mannheim Gold*, are used by some authors to designate alloys consisting of about 85 per cent. copper and 15 per cent. zinc; whereas, according to others, Prince's metal and Mannheim gold are synonymous, and are composed of 75 per cent. copper and 25 per cent. zinc; according to another author, similor consists of about 71½ per cent. copper and 28½ per cent. zinc; and Mannheim gold of 80 per cent. copper and 20 per cent. zinc; and again, another author states that similor and Mannheim gold are synonymous, and are applied to alloys of copper containing from 10 to 12 per cent. zinc and from 6 to 8 per cent. tin.

Copper and zinc unite in all proportions and form homogeneous metals, but the melting-point of brass is less than the mean of the melting-points of its essential constituents. Mr. Arthur H. Hiorns, in his very useful work on mixed metals,‡ remarks that certain varieties of brass are exceedingly malleable and ductile, and these properties, combined with the variety of shades of colour obtained by suitable mixing, and the

* "Metals," 1894, p. 291.
† "Metallurgy," p. 606.
‡ "Mixed Metals, or Metallic Alloys," 1890, p. 82.

moderate cost, render copper-zinc alloys most valuable for ornamental purposes. Brass possesses all the necessary advantages as a constructive material for ornamental work, and, with the aid of transparent varnishes, termed lacquers, which have been brought to great perfection, it resists the action of the atmosphere remarkably well. Alloys containing up to 35 per cent. zinc may be drawn into wire, but those containing 15 to 20 per cent. of zinc are the most ductile. The alloy known as Dutch metal, which contains more copper than ordinary brass, is an example of the great malleability of the alloy. The following table exhibits the constitution of some varieties of modern brass :—

Varieties of Brass.

Name.	Colour.	Copper.	Zinc.	Tin.	Lead.	Iron.
Pinchbeck	Reddish-yellow	88·8	11·2	—	—	—
"	Red	93·6	6·4	—	—	—
Tournay's alloy	Yellow	82·54	17·46	—	—	—
Rich sheet-brass	"	84·0	16·0	—	—	—
Dutch alloy	"	76·0	24·0	—	—	—
Bristol sheet-brass	Bright yellow	72·8	27·0	—	0·2	—
Brass wire	" "	70·0	30·0	—	—	—
Sheet and wire brass	Full-yellow	67·0	33·0	—	—	—
Bobierre's metal	" "	66·0	34·0	—	—	—
Muntz metal	" "	62·0	38·0	—	—	—
Common brass	" "	64·0	36·0	—	—	—
Aich's metal	" "	60·0	38·2	—	—	1·8
French brass (Potin jaune)	Grey-yellow	71·9	24·9	1·2	2·0	—
" " (for fine castings)	Full-yellow	71·0	24·0	2·0	3·0	—
Sterro-metal	—	55·5	42·0	—	—	2·5
White brass	—	34·0	66·0	—	—	—

A large number of other kinds of brass are alluded to by the last-mentioned author, quoted principally from Dr. Percy's "Metallurgy," and the "Report of the Committee on Alloys appointed by the United States Board," vol. ii. (1881).

In reference to structure, it may be observed that brass has been obtained in the crystalline form, and it would appear that this condition does not depend on an excess of zinc being present in the alloy, as at first sight might be imagined was the case, from the facility with which that metal usually takes on a crystalline structure.

One of the most malleable of brass alloys is *Dutch Metal*, or *Dutch Leaf-gold*, as it is sometimes called. Typically, this is composed of 11 parts copper to 2 of zinc; before the art of electro-gilding was discovered such metal as this was almost universally employed in gilding. A variety in which this metal is very finely-ground is known as *Bronze-powder*, which has been extensively used for decorative purposes; by varying the quantity of copper in the powder, shades may be obtained ranging from copper-colour to pale yellow. A small quantity of tin is usually added to brass used in engraving. Professor Bloxam says that brass is liable to be rendered very brittle when placed in situations where it is exposed to continual vibration. This seems to be due to the development of a crystalline structure, and has occasionally led to the breaking of the suspending-chains of chandeliers. This appears to be a profitable subject for minute investigation when the precise composition of the brass is obtainable.

Aluminium Bronze is the name given to an alloy of 9 parts copper and 1 part aluminium. A remarkable white alloy is *arguzoid*, said to be tough and to possess mechanical properties superior to brass; this has the following percentage composition :—Copper 56, zinc 23, nickel 13·5, tin 4, and lead 3·5.

GENERAL BUILDING NEWS.

New Baths, Oxford-street, Manchester.—The block of buildings for the new baths recently erected for Mr. Nathaniel Barker, in Oxford-street and St. James'-street, Manchester, covers an area of 365 square yards, and has cost 6,500*l.*, exclusive of stoves, boilers, porcelain baths, and fittings. This building has been erected on the site of the old premises so well known as "Mr. Constantine's Baths," which had been in existence many years. The new baths comprise :—Gentlemen's first-class Turkish bath on the ground floor; gentlemen's second-class Turkish bath on the first floor; gentlemen's large Russian bath on the second floor; ladies' Turkish and Russian baths on the second floor at the front of the building; four private Russian baths; seven ordinary vapour baths; two vapour boxes; seven ordinary warm baths; two rooms for sulphur and chemical baths. The heating-stoves, boilers, kitchen, washhouse, laundry, &c., are in the basement. The principal entrance is in Oxford-street, and there is also an entrance in St. James'-street, which opens into the vestibule. Near the principal entrance are the office, waiting-room and ladies' staircase. A corridor from the vestibule leads to the main staircase, from which the gentlemen's Turkish and other baths are reached on the several floors. The first-class Turkish bath is entered at the foot of the principal stairs, and comprises a cooling-room, 34 ft. by 19 ft. 6 in. and 12 ft. high, two shampooing-rooms, each 9 ft. square, plunge-bath, 10 ft. 6 in. by 9 ft., and two hot-rooms, one 24 ft. 6 in. by 12 ft. 6 in., the other 12 ft. 6 in. by 6 ft. The floors are constructed of steel joists and concrete, the surface being finished in Venetian mosaic, with ornamental borders. The ceilings of the cooling and hot rooms are of opal glass, divided into panels with ribs of teak-wood. The windows in the cooling-room are arranged in three heights, so that any section may be opened for ventilation as required. The windows in the hot-rooms have double glass, the inner sheets being filled in with lead lights of an ornamental pattern and coloured glass. The walls of the cooling, hot, and shampooing-rooms are lined with enamelled red and yellow glazed bricks, arranged in bands, with a chocolate-coloured dado. There is an elaborate screen at the entrance to the cooling-room, in American oak, and of Arabian character in design. The several openings in the brick-walls have Moorish arches, with glazed brick bands in yellow and red. The second-class Turkish bath is over the first-class, and with rooms of the same size, but there is no plunge-bath, and the ceiling is finished in cement decorated. The Russian bath is over the second-class Turkish bath. In the roof is a spacious room with three cisterns of galvanised iron, each holding 1,000 gallons of water. The hot and cold air-flues are lined with white enamelled bricks, and are sufficiently large for a man to get up and down, by a ladder or bars built in, for cleaning purposes. The cold air is taken from the roof-level, and is filtered as it descends to the heating-stoves in the basement. The building is well-lighted and fitted up with every convenience in the way of lavatories, closets, &c. There is a lift from the kitchen to the several floors. The windows are made reversible throughout, and are so constructed that they can be cleaned by the attendant of each department from the inside of the room. In the staircase, passages, and other parts of the building where glazed bricks have not been used, the walls, arches, and ceilings have been finished in cement and decorated. The elevation, simple in character, is of red Carlisle stone on the ground floor, with red Ruabon bricks and red stone dressings to the windows above. Any attempt at outline has been restricted by the rights of the surrounding properties as to lights, &c. The baths have been fitted up with all modern appliances in the way of plumbers' work, stoves for heating the air, steam boiler, hot-water boiler, drying stove, &c. A steam boiler has been made to order for the supply of vapour; this and a copper circulating boiler for heating water are fixed in the basement. The ventilating flues descend to chambers under the floor in the basement, which in turn are connected to the main shaft—the tall chimney. It is impossible for vitiated air to stagnate in these baths, and whatever the outside temperature, the inside supply, both as to quantity and temperature, will be perfectly under control. The work has been carried out by the contractors, Messrs. Neill & Sons, of Manchester; Messrs. J. & H. Patteson supplied the mosaic work; the Midland Reversible Window Company, of Middlesbrough, the windows; and Messrs. Sutherland & Co., Limited, have done the decorating. The whole of the work has been done under the direct superintendence of the architects, Messrs. Barker & Ellis, of Manchester.

Restoration of King's Langley Church, Hertfordshire.—The Church of All Saints', King's Langley, has just been reopened after restoration. The south chantry of the choir has been extended eastward to form a choir-vestry, and the organ has been taken down and removed from the tower to a new position adjoining. Consequently on that alteration the tower has been paved, its western doorway restored, and a panelled ceiling formed, so that it is now available for the seating of the congregation. The glass of the east window has been replaced by a window by Messrs. Clayton & Bell, the old glass being reserved to be altered and refixed elsewhere in the church. New oak choir-seats and clergy-stalls, designed by one of the architects to the Ecclesiastical Commissioners, have been placed in the chancel. The general restoration and enlargement has been carried out by Mr. Miskin, builder, of St. Albans, under the direction of the architect, Mr. Gordon P. G. Hills.

School, Wrexham.—The foundation-stone has just been laid of a new National school for girls at Wrexham. The new school, plans for which were prepared by Messrs. Morrison & Son, and approved by the Education Department, will be erected on a site adjacent to the Madeira Hill School for Boys.

School, Dundonald, Ayrshire.—On the 5th inst. the foundation-stone of a new school for Dundonald was laid. The architect is Mr. Smillie, Kilmarnock.

Wesleyan Chapel, Paignton, Devonshire.—Foundation-stones of the Wesleyan Chapel at Paignton were laid on the 9th inst. The architect is Mr. W. G. Couldrey, of Paignton.

The Duke of Fife's New Deeside Residence.—Her Majesty the Queen laid the foundation-stone on the 15th inst. of the new mansion which is to take the place of Mar Lodge, recently destroyed by fire. The Lodge is to be a comparatively low building, but very extensive in range. It will consist of a centre block with two side wings which project forward from the main building in a crescent or half-moon form. Round the entire mansion will be erected a verandah. The Lodge will be built of granite quarried in the neighbourhood, and a large portion of the timber will also be taken frem the adjoining forests. The granite is of a warm pink colour, and the roof will be covered with English-made red tiles. The style of the architecture will be Elizabethan, having a good deal of woodwork in the exterior about the gables and verandahs. A large number of bedrooms are provided, besides numerous public rooms. The kitchen and offices will form a separate pavilion from the main house, and the latter is so arranged that all the bedrooms and public rooms will have a southern exposure. New stabling and a thorough system of water and drainage will be carried out. The architect of the new Lodge is Mr. A. Marshall Mackenzie, A.R.S.A., Aberdeen.

Renovation of Church, Perceton, Irvine, Ayrshire.—The old Free Church at Perceton, near Irvine, has just been reopened. The church has been reseated and has undergone a thorough renovation, according to plans by Mr. John Armour, architect, Irvine.

Building Activity in Glasgow.—At the Glasgow Dean of Guild Court, on the 3rd inst., Lord Dean of Guild Brown gave some statistics in reference to the abnormal activity in the building trade in the city for the year ended August 31 last. He stated that the number of linings granted during that period had been twenty-three more than in the previous year, and the largest for twenty years; whilst the total value of the buildings authorised was 1,467,235*l.*, being 191,700*l.* more than for the preceding year, and the largest for eighteen years. There was a marked decrease in the number of linings granted for dwelling-houses of three and four apartments, but the falling off in these was more than made up by the extra number granted for houses of one, two, five, and six apartments and upwards. Although the number of linings for public buildings had not greatly increased, being eight as compared with six, the size and design of these had been of an exceptionally large and ornate character, their estimated value being 256,500*l.*, as compared with 27,000*l.* in the preceding year. There had been thirty-six linings granted for new streets, extending 7,257 lineal yards, or four and one-eighth miles.

Restoration of Wakefield Old Grammar School.—The old Grammar School building at Wakefield, which for nearly forty years past has been used as a store-house, is again to be used for educational purposes, and on the 14th inst., along with certain additions that have been made, it was dedicated by the Bishop of the diocese. The building was built in 1591 by Geo. Savile and his two sons, and from that time up to nearly forty years ago was the home of the Wakefield Grammar School. There is a lofty room, 76 ft. long by 22½ ft. wide, with open-timbered roof in oak. This structure has been restored both inside and out. The additions that have been made comprise a large assembly-hall, 60 ft. by 30 ft., opening out to the old school buildings; two new class-rooms, 25 ft. by 20 ft.; and a teachers' room. There is also in this part of the building a senior boys' entrance, with a roomy corridor. At the south end is another class-room, 24 ft. by 20 ft., with an entrance for juniors. There is accommodation altogether for 308 boys, exclusive of any use the assembly room may be put to for teaching purposes. The hall is lighted with mullioned windows, and is heated with hot-water pipes, and there is also an open fire-place. In the basement is a room, which may probably be used as a gymnasium. The premises are approached from Brook-street. Mr. F. Simpson is the architect.

Proposed Reconstruction of the People's Palace, Newcastle.—The contract for the reconstruction of the building in the Haymarket, hitherto known as the People's Palace, Newcastle, has been let to Mr. Alexander Pringle, of Gateshead, and will be carried out according to plans prepared by Mr. J. W. Taylor, architect. It is intended to gut the building, and to remodel the auditorium on modern lines. The idea of having the gallery seats behind the horse-shoe balcony to be erected has been abandoned, and it has been decided to construct a new gallery above the latter. The

building will thus have two new galleries instead of one, extending round three sides of the building. At the back of the first circle, or balcony, there will be a promenade. Arrangements have been made for a complete installation of the electric light. Additional exits and entrances are to be made in St. Thomas's-street and the Haymarket.

Model Bakery at Cramlington, Northumberland.—On the 12th inst. new baking premises were opened at Cramlington for the District Co-operative Society. The new buildings consist of a bakehouse 32 ft. by 33 ft., confectionery-room, cooling-room, engine-room. Two ovens and firing-passage, &c., occupy a space of 22 ft. by 22 ft., and on the first floor is a large flour-warehouse, directly above the bakehouse. The ovens consist of a double pile of Jennison's patent hot-air smokeless ovens, and a double pile of Mason's patent continuous hot-air smokeless ovens, together with hot-water supply and steam-power. The contractors for the buildings are Messrs. Dixon & Simmons, Cramlington; plumbing and gasfitting, Mr. Arthur Scott, Heaton; machinery and oven contractors, Messrs. W. F. Mason, Limited, Longsight, Manchester. The whole of the work has been carried out from the plans and under the superintendence of Mr. John Crone, architect, Newcastle-on-Tyne.

Church, Marsden, Yorkshire.—A new church was consecrated at Marsden on the 12th inst. by the Bishop of Wakefield. The church is designed in the English fourteenth-century Gothic, and the portion now completed consists of a nave 92 ft. long by 24 ft. wide, in six bays, with open-timbered roof. There is a wide and lofty chancel-arch, where a temporary chancel has been formed, and at the west end of the south aisle an archway gives access to a proposed morning chapel. Miss Kate Robinson has presented a stone pulpit, executed by Mr. George Milburn, of York, in memory of her father, The design includes a western tower, but this will not be carried out at present, The church will now seat 600, and when fully completed 800. The architects are Messrs. C. Hodgson Fowler, of Durham, and John Kirk & Sons, of Huddersfield, and the work has been carried out by local contractors. The cost has been about 7,800*l.*

School, Barkisland, Yorkshire.—A new infants' school has just been built at Barkisland. The site was given by Captain J. T. Horton, of Howroyde, and the building has been erected after the plans of Mr. Swinden Barber, of Halifax. The new school consists of a large main-room (35 ft. by 20 ft.), which communicates through a sliding partition with a smaller class-room, the whole providing accommodation for 100 children. Besides these, there are a porch and lobby. The contracts have been carried out by the following:—Masonry, Messrs. Crawshaw Bros., of Ripponden; plastering and slating, Messrs. J. Firth & Sons, of Halifax; joinery, Mr. Greenwood, of Mill Bank; and plumbing, Mr. Stafford, of Sowerby Bridge.

SANITARY AND ENGINEERING NEWS.

Water Supply, Portland.—According to the *Western Mail*, it has just been made known that the Portland District Council have decided to abandon the scheme of water supply which has been in progress for some time past. Owing to the deficiency and bad quality of the existing water supply and the pressure put on the Local Authority by the Admiralty, the Council, after taking high opinion as to the geological possibilities of obtaining a good supply below the rocky stratum on which Portland rests, decided to sink a shaft and erect a pumping-station at Southwell, a village near Portland Bill, and only a short distance from the sea. This was done, and water in large quantities was reached. Analytical examination, however, has proved that the water is extensively tainted by salt, and there is little doubt that the water reached is nothing but the soakage of the island and the percolation from the sea.

Waterworks, Coventry.—On the 9th inst. the new Whitley Waterworks were opened by the Mayor of Coventry (Alderman Loudon). The engineers of the works were the late Mr. Hawksley and his son, and in the borings at Whitley they have provided the city with an additional million gallons of water per day, a quantity that with the existing provision is sufficient for a population of 100,000 persons. New reservoirs have been built at Baker's Butts, on the opposite side of Coventry to Whitley. The total cost of the scheme is about 65,000*l.*

FOREIGN AND COLONIAL.

France.—The Académie des Beaux-Arts proceeded on Saturday last to the election of a member of the Section of Architecture in place of the late M. Ancelet. Four candidates appeared: MM. Guadet, Paul Sédille, Dutert, and Nénot. The latter, after four votings, was elected by nineteen votes, against sixteen for M. Guadet. The new Academician, who is the architect of the new Sorbonne, is forty-two years of age. He was a student of the Ecole des Beaux-Arts, and worked in the ateliers of MM. Questel and Pascal. He obtained the Prix de Rome in 1877, and gained medals at the Salons of 1880 and 1884. He obtained a gold medal and the Cross of the Legion of Honour at the Universal Exhibition in 1889. He gained a war-medal also for his brilllant conduct during the Franco-German War, when he was only seventeen.——It is announced that the monument to Meissonier, by M. Mercié, will be inaugurated next month in Jardin de l'Infante, near the Museum of Antique Sculpture at the Louvre.——Thirteen architects have taken part in the competition opened by the *Figaro* for the construction of a building as an annexe to the house occupied by that journal in the Rue Drouot.——The new Mairie at Issy-les-Moulineaux was opened last Sunday.——The Gobelins establishment has just delivered at the Bibliothèque Nationale a large decorative hanging intended for the room opening out of the "Salle des Actes." The tapestry, which symbolises the Arts, completes the decorative scheme carried out at the Gobelins manufactory; the two other tapestries represent Literature and Science. The Gobelins is also now at work on twelve tapestries intended for the Sorbonne, after the cartoons of M. Ehrman, and also has in hand an immense tapestry intended for the Archives Nationales, from a cartoon by M. Jean Paul Laurens.——Important building works are in progress at St. Quentin. They include the construction of a Hôtel de Ville and various schools. The total cost of the work in hand is estimated at 2½ millions of francs.——The French Government is constructing at Tunis, on the Boulevard de Paris, a Palais de Justice, at a cost of 800,000 francs.

Germany.—The Emperor has given Professor Becker the title of Honorary President of the Prussian Royal Academy, on his retirement from the President's chair. This is a precedent in the annals of the institution. Professor Ende, Hon. Corresponding Member of the Royal Institute of British Architects, shortly takes office as Professor Becker's successor.——The appointment of Professor Ende as President of the Royal Academy is of much importance for the long-mooted question of separating the art schools from the institution and erecting a special building for this purpose at Charlottenburg. Herr Ende is much in favour of the scheme, and prepared plans for the new building in 1892, together with a design for rebuilding the old Academy block. Both sets of plans were approved by the Emperor, but Parliament has not yet voted the money.——This year's Art Salon closed on the 1st inst., and the Exhibition buildings will now be prepared for the coming International Art Exhibition. The exhibition of models for the Bismarck monument has also been closed. The arrangement of the galleries for next year's exhibition will be in the hands of Professor Ende.——A competition has been opened for a memorial to the deceased painter, Ludwig Richter. Thirty-three models have been sent in. The site of the monument is to be in the Bruelsche-terrace.——The *Centralblatt der Bauverwaltung* describes some extensive scene-stores lately completed at Hanover. The building has a very practical plan, and has only cost 5,500*l.* Herr Lange was the architect.——The German Government has erected a new post-office on Heligoland, which is the most pretentious building on the island.——An Electrical Exhibition has been opened at Karlsruhe. The exhibition is in connexion with a proposal to light the city by electricity, and have a central municipal supply-station.——The Stuttgart Town Council has decided to present every competitor for the Town Hall competition with an elegantly-bound collection of lithographs taken from the premiated designs. Herr Kick, an architect, is entrusted with the publication of the lithographs. There are 202 competitors.——A competition has been opened for the exhibition-buildings which are to be erected at Kiel for the Naval Exhibition of 1896.——The works of the *Limes* Commission will be continued, and funds will be voted for this purpose in the next session of the Imperial Parliament. The work of the *Limes* Commission has now spread over four years, and 8,000*l.* have been spent. Another 2,000*l.* will probably be required to complete the research.

MISCELLANEOUS.

Llanelly Intermediate and Technical Schools Competition.—The assessor appointed to report upon the designs submitted in competition for the above has made his award in favour of the plans of Mr. W. H. Dashwood Caple, architect, of Cardiff.

Church of the Most Holy Redeemer, Chelsea.—The Electrical Installation Company ask us to correct the statement that this church was lighted by the "Westminster Electric Installation Company," their title being "Electrical Installation Company," without the word "Westminster." There is another company entitled "The Westminster Electric Supply Corporation," so that some confusion might have been created as to which company was meant. We were not responsible for the wording.

Sagar's Roller-feed Moulding Machine.—This machine, an illustration of which has been sent to us, is made for moulding straight, circular, or irregular shapes, and is chiefly used for moulding on the edges, but may be used for a variety of other kinds of moulding, planing, and shaping. It has all the features of the ordinary style of machine, but in addition, it has an automatic feed-motion for straight work which is of great use in working sash-bars, beads, and such light mouldings as are always being required in a builder's shop, and which can be better done by a regular roller-feed than when fed irregularly by hand. The feed-roller is driven by worm and worm-wheel gearing, which is fixed underneath the table, completely out of the way of the operator, and is driven by a belt from a counter-shaft. Suitable fence and holding-down roller-springs are provided. The feed-roller fence, &c., can be very quickly removed, and the table left clear for irregular moulding.

Clock, Morchard Bishop.—A large church clock has been erected at Morchard Bishop, Devonshire, which strikes the hours, and has one 6-ft. dia facing west. Messrs. John Smith & Sons, Derby, carried out the work.

Memorial Window in St. Michael's, Merchiston, Edinburgh.—A memorial window has just been placed in St. Michael's Established Church, Merchiston. It occupies the east end of the church, and has been treated in a coloured mosaic manner. The window is one of three divisions, and has been filled with two tiers of subjects, the three upper ones being "The Descent from the Cross," occupying the central opening, and scenes from the life of Moses and St. Paul on either side. Below these are placed representations of the women bringing children to our Lord, and incidents from the life of Ruth and Dorcas. The whole work has been carried out under the superintendence of Mr. John Honeyman, A.R.S.A., at the studio of Messrs. Ballantine & Gardiner, Edinburgh.

Lancashire and Cheshire Antiquarian Society.—The opening meeting of the season of this Society was held on the 11th inst., at Chetham's Hospital, when Professor Boyd Dawkins gave an address on "Roman Britain," with lantern illustrations. In the course of his address Professor Boyd Dawkins described the condition of Britain at the time of the first Roman invasion, and showed that the theory of a savage aboriginal race at that period was not in accordance with the evidence handed down to us of a comparatively cultured people. At the same time he did not seek to under-estimate the benefits conferred upon the country by the Romans. Speaking of the public works of the Romans, he described their great highways, and declared that those roads did as much for Britain in that epoch as our railways had done for us in modern times. The stone setts that we used in our streets to-day were no doubt handed down to us by the Roman road-makers, who did their work so well that examples of it might be seen even now, particularly in the North Riding, standing out clear and distinct on the lonely moors. Many of our existing roads, he added, were on the sites of the Roman roads, and our great main highways were nearly all, if not actually on those roads, close by them. It was also of interest to note that all the wars that went on in Britain, from the time of the Romans to the reign of Elizabeth, took place along the lines of communication made by the Roman engineers. Referring to the fortresses and camps of the Roman soldiers, Professor Boyd Dawkins pointed out that Roman Manchester covered an extremely small area. An idea of its limited extent was suggested by the statement that it was not anything like the size of the area now occupied by Owens College. Besides describing the fortresses, the lecturer gave an outline of the commercial and social life of the period, filling in the picture with incidental detail suggested by the discoveries at Silchester and other Roman sites.

Electric Lighting of Tunbridge Wells.—The electric light has just been installed at Tunbridge Wells, at a cost of 25,000*l.* The Corporation have had the advice of Mr. Preece, the electrician of the General Post Office, as their consulting engineer, and his designs have been carried out by Mr. H. L. P. Boot, the resident engineer. Plant for supplying the electricity is fixed in Corporation-yard, near the South-Eastern Railway Goods Station. Sufficiently powerful lamps light some of the main streets, the chief public buildings and rooms, and many of the shops and private houses.

Form of Contract for New Board Schools in London.—The Works Committee of the London School Board recently had under consideration letters from various contractors on the Board's list declining to continue to tender for the Board's work as they objected to the new conditions of contract which were approved by the Board on May 9, 1895. The Committee accordingly appointed a Sub-Committee to meet the objecting contractors, and they submitted, at their meeting on Thursday, for the information of the Board, the following report of this Sub-Committee, which has now been approved by the Works Committee:—"The Sub-Committee have to report that they have held one meeting, at which the following contractors were present:—Mr. J. Cox (on behalf of the Mid-Kent Building and Contracting Works, Limited), Mr. W. Dabbs, Mr. B. J. Greenwood (on behalf of Messrs. Holliday and Greenwood), Mr. J. Grover (on behalf of Messrs. Grover & Son), and Mr. S. Hart (on behalf of Messrs. Hart Bros.). (Mr. W. Bailey, contractor, was also asked to attend, but was unable to do so.) These contractors were then asked to state in detail what were their objections to the conditions of contract, and after hearing these

objections, the Sub-Committee decided to make the following recommendations :—1. The first paragraph of Clause 5 is as follows :—"Where the London scale of wages shall apply, the contractor shall pay to the workmen employed by him the rates of wages mutually agreed upon by the Central Association of Master Builders of London and the representatives of the Unions of the various branches of the Building Trade, and which agreed rates of wages are set out in the schedule hereto." The Sub-Committee find that considerable misapprehension exists with regard to this clause, as some of the contractors appear to be of opinion that it prevents them from employing apprentices and improvers at less than the full rate of wages for workmen. The following is an extract from a report which was made to the Works Committee on March 11, 1889, by a Sub-Committee appointed to consider the question of the rates of wages, and which report was then approved by the Committee :—"With regard to the meaning of the term 'improvers,' the Sub-Committee have ascertained that there are two classes of workmen who are generally recognised as 'improvers,' namely : (a) unindentured apprentices, and (*b*) inferior workmen —but there are also workmen who are paid less than the minimum rate because they are old servants, and have become infirm from injury or age. With regard to the percentage of 'improvers' on the total number of men employed, the Sub-Committee find that this percentage is variable, being greater in winter than in summer, owing to the fact that although the 'improvers' themselves are pretty constant in employment, the number of other workmen employed during the former season is usually considerably less than during the latter. The Sub-Committee understand, however, that except during the winter months, the number of 'improvers' employed may be taken generally as from 5 to 10 per cent. of the total number of workmen." The Sub-Committee think it would be desirable that the Works Committee should place on record the fact that they do not object to the employment of 'improvers' to the extent specified in the above extract, and have informed the contractors who were present that they have no doubt that this represents the opinion of the Works Committee at the present time. 2. The Sub-committee recommend that Sub-section (i.), Clause 6, be omitted from the form of contract for new schools and enlargements, and that, in future, instructions be issued by the Architect to the clerk of works employed by the Board on each job, requiring him to display on the works a copy of the schedule of wages as printed in the form of contract. 3. The Sub-Committee find that considerable misapprehension has also arisen with regard to Sub-section (ii.), Clause 6, and they are of opinion that this Sub-section should be amended so as to make it clear that it will be sufficient for the purposes of the Board if the contractor is required to produce his weekly pay-sheets only on the direct instructions of the Board or its Committees, in the event of a dispute arising as to the rate of wages paid in any particular case. The following are the alterations which it is now proposed to make in Clause 6 of the Form of Contract for New Schools and Enlargements, in order to give effect to the recommendations of the Sub-Committee : —"6. The contractor shall at all times during the continuance of this contract perform, observe, and keep the following conditions :—(i.) The contractor shall, during the continuance of this contract [display and keep] *allow to be* displayed upon the site of the works [and in every factory, workshop, or place occupied or used by the contractor in or about the execution of this contract] in a position in which the same may be easily read by all workmen employed by the contractor in or about the execution of this contract a [clearly] printed or written copy of the said schedule hereto, and for each and every breach by the contractor of this condition, and notwithstanding the condonation of any prior or other breach, the contractor shall on demand pay to the Board as liquidated damages and not as a penalty the sum of 1*l.* for every day during which such breach shall be or continue. (ii.) The contractor shall, to the satisfaction of the Board, provide and keep proper [books] *weekly pay-sheets* in which shall be correctly and promptly entered from time to time the names of all such workmen as aforesaid and the wages paid to such workmen respectively, and shall from time to time when required *by the Board for the purpose of meeting any complaint by the workmen that they are not being paid the stipulated rate of wages* produce such [books] *weekly pay-sheets* to any person or persons appointed by the Board or by any Committee of the Board to whom the matter or business out of which this contract arises may have been or may be referred to inspect the same, and allow such person or persons to take copies of or extracts from such [books] *weekly pay-sheets* or any of them, and for each and every breach by the contractor of this condition, and notwithstanding the condonation of any other or prior breach, the contractor shall on demand pay to the Board as liquidated damages, and not as a penalty, the sum of 3*l.*"* The Committee now recommend that these alterations be approved, and that they be authorised to make similar alterations in the other forms of building contract. According to the Board's agenda-paper, an amendment was moved at the meeting on Thursday to refer the resolution back to the Works Committee.

THE NAVE OF CARLISLE CATHEDRAL.—Mr. Charles Ferguson has raised a rather interesting question, says the *Carlisle Express*, relating to the history of Carlisle Cathedral. The old histories and traditions tell us that the nave of the Cathedral originally consisted of nine bays, and extended nearly as far as Bishop Ware's residence, and that, having been very much knocked about during the troublous times of its early existence, it was finally destroyed, or partially so, and reduced to its present dimensions during the Civil Wars. Mr. Ferguson doubts the whole story. He does not deny that the nave of the nine bays may have been contemplated, or even that the foundations were actually put in, but thinks it probable that either the original design was not carried out, or that the nave had been reduced long before the Reformation. He is led to this conclusion from his belief that the west wall is a pre-Reformation wall. There is a tradition that the stones of the old walls were used to build a guard-house. But if that is correct, where are those stones now? "The jambs, caps, pillars, and arches of the great doorways and windows," he says, "would not altogether disappear if they once existed and were built into subsequent buildings." In the meantime he seeks information, and appeals to the workmen who may have been engaged in erecting the modern window in the wall, and to persons having old drawings of the Cathedral, to help him to clear up the question.

LEGAL.

LIGHT AND AIR CASE:

THE ACTION AGAINST THE OXFORD] MUSIC HALL COMPANY.

THE case of Hawkins *v.* the Oxford, Limited (reported in the last issue of the *Builder*), was in the list of hearings before Mr. Justice Hawkins, sitting as Vacation Judge, on Tuesday last, but by consent of all parties it was arranged that it should stand over till the second motion day in next sittings, the injunction granted by his Lordship to the plaintiffs on the 8th inst. being extended till then.

J. P. NORRINGTON *v.* J. MARSLAND.

AT the Lambeth Police-court on the 10th inst., Mr. John Marsland, builder, of York-street, Walworth, appeared to answer a summons taken out by Mr. J. P. Norrington, Surveyor to the Lambeth Vestry, complaining that he unlawfully commenced to lay or dig out the foundation of a new building on certain land in Vauxhall-walk, without having first given seven days' notice in writing to the Vestry.

Mr. H. J. Smith, Clerk to the Vestry, appeared in support of the summons, and Mr. Bassett Hopkins represented the defendant.

Mr. Smith said the Vestry instituted these proceedings under the 76th Section of the Metropolis Local Management Act, under which all builders or persons intending to build new houses had to give seven days' notice in writing to the Vestry or District Board before they commenced their operations. In July the attention of the Vestry was drawn to the fact that the erection of a building had been commenced in Vauxhall-walk, of which no notice had been given to the Vestry. The defendant could scarcely plead ignorance of the requirements of the Act, because, up to recently, he was a member of the County Council and the Vice-Chairman of the Committee which had the control of the buildings of the Metropolis.

Mr. Bassett Hopkins remarked that this was the first time, so far as he knew, that the actual builder had ever been proceeded against for neglecting to serve a notice under this section. He submitted that the words of the section did not apply to the builder any more than they applied to his workmen or the architect. The section obviously meant that the notice should be given by the person who gave the original direction—the principal—and that was what had actually been understood throughout the Metropolis.

The Magistrate : Oh, no. This is not the first time within my experience, certainly, that a builder has been summoned under this section. What you have got to persuade me is that the words "By the person intending to build or rebuild" may not include the builder.

Mr. Bassett Hopkins contended that it was incumbent upon the prosecution to show that it was meant by the Legislature to include the builder.

The Magistrate replied that his experience was that the responsibility of giving notice, both under this Statute and the Building Act, was always thrown upon the builder. He could not give effect to Mr. Bassett Hopkins' contention, and the case must proceed.

After some evidence had been given by the Vestry's officials, the Magistrate said a technical offence had been committed, and ordered the Defendant to pay a nominal penalty of 20*s.* and 2*s.* costs.

CAPITAL AND LABOUR.

STATE OF EMPLOYMENT IN SEPTEMBER.—According to the *Labour Gazette*, in most of the important industries the state of the labour market has continued to improve during September, and the percentage of unemployed in unions making returns is lower than at any period since 1891. The building trades continue busy in most districts, the percentage of unemployed members in unions making returns having fallen from 1·8 in August, to 1·6 in September, compared with 3·6 in September, 1894. On the whole, the furnishing and wood-working trades are well employed, and the percentage of unemployed union members has fallen from 2·7 in August, to 2·6 in September, compared with 4·7 in September, 1894. The number of fresh disputes occurring in September was 66, compared with 52 in August and 69 in September, 1894. Particulars obtained as to numbers affected show that in 60 disputes, 9,893 workpeople were concerned. Of the 12 disputes in the building trades, 2 were upon wages questions, 6 upon refusal to work with non-union and free labour men, 1 upon demarcation of work, and the remaining 3 upon various points of working arrangements.

ARBROATH MASTER BUILDERS' ASSOCIATION.—At a meeting of the Arbroath Master Builders' Association, held on the 9th inst., a deputation from Dundee attended, and strongly advised the masters to endeavour to get the master tradesmen in Arbroath to form a branch of the Scottish Building Trades' Federation. The deputation explained the working of the Federation, and it was resolved to hold a meeting at an early date to deal with the proposal.

MEETINGS.

FRIDAY, OCTOBER 18.

Sanitary Institute (*Lectures for Sanitary Officers*).—Professor Bostock Hill on "Trade Nuisances." 8 p.m.

SATURDAY, OCTOBER 19.

Sanitary Institute (*Lectures for Sanitary Officers*).—Inspection of Harrison & Barber's Knacker Yard, Whitechapel. 3 p.m.

Northern Architectural Association.—Visit to Sunderland.

TUESDAY, OCTOBER 22.

Sanitary Institute (*Lectures for Sanitary Officers*).—Professor Corfield on "Water Supply, Drinking Water, Pollution of Water." 8 p.m.

WEDNESDAY, OCTOBER 23.

Architectural Association (*Discussion Section*).—Mr. Sydney Perks on "Professional Etiquette." 7 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*). Inspection of the East London Soap Works, Bow. 3 p.m.

Institution of Mechanical Engineers.—Mr. H. R. J. Burstall on "The Electric Lighting of Edinburgh" 7.30 p.m.

THURSDAY, OCTOBER 24.

Institution of Mechanical Engineers (*continued*).—(1) Report on the Lille Experiments upon the efficiency of Ropes and Belts for the Transmission of Power; translated by Professor David S. Capper. (2) Observations on the Lille Experiments upon the Efficiency of Ropes and Belts for the Transmission of Power; by Professor David S. Capper. 7.30.

FRIDAY, OCTOBER 25.

Architectural Association. — Annual Conversazione, King's Hall, Holborn Restaurant. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. A. Hill on "Diseases of Animals in Relation to Meat-supply: Characteristics of Vegetables, Fish, &c., unfit for Food." 8 p.m.

SATURDAY, OCTOBER 26.

Sanitary Institute (*Lectures for Sanitary Officers*).—Inspection of Richmond Main Sewerage, Mortlake.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

20,279.—WATER-CLOSETS : *E. Morton and another.*—This invention relates to the form of water-closets, known as valve-closets; the valve-box and overflow trap being cast in one piece. The metal dip or seal of the trap is also cast in connexion with the valve-box cover, which is formed to fit closely into the mouth of the trap.

20,356.—FLUSHING APPARATUS : *H. Kent.*—According to this patent an ordinary supply cistern is fitted with a syphon-tube having two arch-shaped bends which form a double syphon. One of the bends being higher than the other becomes charged with air, and stops the flow of water through the syphon. The flushing is started by causing this air to escape by a tube connected to the crown of the arch, or other suitable means.

20,625.—JOINTING PIPES : *F. Brook.*—Relates to jointing stoneware or earthenware sewage-pipes and making the joints, at the time such pipes are laid, by means of cement being run into the space between socket and spigot, through holes in the socket, commonly called "grouting holes." Several of these holes are made, and the cement is run into the socket by means of a tube or funnel beginning at the lowermost hole, and thus forcing out the air, which would otherwise prevent the socket being properly filled.

21,417.—CHIMNEY SHAFTS : *J. Rae.*—For preventing down-draught and increasing up-draught in chimney shafts or ventilators. Four vertical division plates are arranged at right angles in the interior of a cylindrical shaft, and project a little way above the top. An inverted cone, having a diameter somewhat less than that of the shaft, is fixed in a position four or five inches below the vertical plates. The whole is surmounted by a conical or other top over the division plates.

23,473.—WATER-CLOSETS : *H. Baden.*—Relates to syphon closets in which the space between the two traps is connected to a nozzle leading from the water-waste

* It is proposed to omit the words in square brackets, and to add the words in *italics*.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*School	Llangollen CountySch. Governors	.....	Oct. 31
*Plans for Sewage	Wantage U.D.C.	Two at 25 Guineas	Nov. 16

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Kerbing, New Laithes-road, near Leeds	Horsforth U.D.C.	W. Walker	Oct. 21
Street Works, Brook-street, Polegate	Hailsham R.D.C.	W. Wallwork	Oct. 22
Sewer, New-street, Staincross, near Barnsley	Darton U.D.C.	R. Dixon	Oct. 23
Sewerage Works, Denwick-lane	Alnwick U.D.C.	G. Bell	do.
Road Works, Manor-road, &c.	Cardiff Corporation	W. Harpur	do.
Reservoir, Brax, N.B.	Carnoustie Town Com.	M'Culloch & Jamieson	do.
Additions to House, Red Craigs, Nigg, Aberdeen	.....	W. Ruxton	do
Additions to House, Wall Nook, Langley Park, Durham	.....	W. F. Jones	do.
Road Works, Wallows-lane, Bescot	Walsall Corp.	*Official*	do.
Schools, Great Marton, Lancs.	Trustees of Baines' School	W. Cardwell	Oct. 24
Factory, Dundalk	Lanham Bros. Ltd.	R. Walker	do.
Drainage Works, Cowdenbeith, N.B.	Police Commrs.	Leslie & Reid	Oct. 25
*Making-up Roads	Wood Green U.D.C.	C. J. Gunyon	do.
Additions to School, Splotlands	Cardiff School Board	Habershon & Fawckner	do.
Parkkeeper's House	Wolverhampton Corp.	J. W. Bradley	do.
Additions to Portsmouth and Gosport Hospital	.....	A. H. Bone	do.
Additions to School, Jarrow	Hedworth, &c. Sch. B.	*Official*	Oct. 26
*Wood Blocks for Road Paving	Camberwell Vestry	O. S. Brown	Oct. 28
Kerbing, &c. near Birmingham	Handsworth U.D.C.	E. Kenworthy	do.
Road Works, Grosvenor-road	Hanwell (Middlesex) U.D.C.	S. Barnes	do.
*New Premises, Darlington	N. of E. School Furnishing Co., Ltd.	G. G. Hoskins	do.
Station, Dromin, Ireland	G. N. R. Co. (Ireland)	W. H. Mills	do.
Villa, Lough-road, Lurgan, Ireland	.....	H. Hobart	do
Additions, &c. to Hospital, Great Yarmouth	.....	Bottle & Olley	do.
School, St. Peter's, Lancaster	.....	Austin & Paley	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Brick Channelling and Granite Kerbing.	Southend-on-Sea Corp.	H. Harlock	Oct. 26
Additions to Schools	Lindfield (Sussex) Sch. Board	F. W. Holloway	Oct. 29
Cottage, Caebryn, Llanelly	G. W. R. Co.	*Official*	do.
*Works at Truro Station	do.	do.	do.
*New Houses, &c. Ryde	Admiralty	do.	do.
Alterations to Schools, Monmouth	.....	G. E. Halliday	Oct. 30
Widening Road, near Bedlinog	Gelligaer R.D.C.	W. Bevan	do.
Road Materials	Rotherham R.D.C.	R. Bradbury	do.
*Making-up and Paving Road	Fulham Vestry	C. Botterell	do.
Roads, Bath-street	Rugby Freehold Land Society	J. T. Franklin	Oct. 31
*Granite and Gravel	Barnet U.D.C.	*Official*	do.
*Water Supply Works	Wokingham R.D.C.	A. Marshall	Nov. 4
Schools, Bynea	Llanelly Sch. Bd.	J. B. Morgan	do.
*Completion of Asylum, Cotford, Somerset	The Committee	Giles, Gough, & Trollope	do.
*Sewerage Works	Hendon U.D.C.	S. S. Grimley	do.
*Construction of Reservoir, &c.	Merthyr Tydfil U.D.C.	G. F. Deacon	do.
*Well Sinking	Belper U.D.C.	*Official*	Nov. 5
Extension of Schools, Ynysbwl	Llanwonno Sch. Bd.	A. O. Evans	Nov. 6
Hospital and Home, Portsmouth	Portsea Union	C. W. Bevis	do.
*Erection of Houses, &c. Tynemouth	Admiralty	*Official*	Nov. 8
Paving Lincoln-street, &c.	Kingsthorpe (Northants) U.D.C.	J. Ingman	Nov. 11
*Sewerage Works	Swadlincote U.D.C.	A. Marshall	Nov. 18
Four Houses, Cleveleys, Fleetwood, Lancs.	J. Wright	T. A. Drummond & Sons	No date
Additions to Workhouse	Sedbergh Union	J. Hutton	do.
Additions to School, Sanderson-street	Sheffield Sch. Bd.	Holmes & Watson	do.
Restoration of Parish Church, Llanmais, Cowbridge, Glam.	.....	E. J. Williams	do.
Two Villas, Antrim-road, Belfast	M. Kernan	E. & J. Byrne	do.
Shop, Albert Bridge-road, Belfast	H. Bartlett	W. J. Moore	do.
Cottage, Fairfield-road, Buxton	J. Harrington	Garlick & Flint	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Road Foreman	Whitechapel B. of W.	2*l.* 10*s.* weekly	Oct. 22
*Sanitary Inspectors (6)	Hackney Vestry	104*l.* each	Nov. 7

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv., vi., *&* viii. *Public Appointments, pp.* xviii. *&* xx.

preventer to the basin. The inventor does away with the clumsy appearance presented in this class of closet, by forming the trap from the water-waste preventer, and the chamber for the after-flush in one piece with the basin.

2,470.—FIREPLACES: *W. Hughes.*—Refers to an attachment for grates consisting of a skeleton or open frame enclosing the whole front of the fireplace and having tubes secured at right-angles which project into the mass of the fuel and convey air for promoting combustion.

5,931.—WATER-PIPES: *H. Curtis.*—Pipes for supplying water are surrounded by a casing of larger diameter, which maintains a stationary body of air round the said pipes, and prevents freezing of the water.

NEW APPLICATIONS FOR LETTERS PATENT.

SEPTEMBER 30.—18,216, J. Bradbury, Wood-planing Machines.—18,242, A. Budden and J. Uglow, Melting and Heating Apparatus for Plumbers, &c.—18,258, W. Haussmann, Kiln.—18,265, H. Gilcher, Valve or Tap.

OCTOBER 1.—18,293, F. Franke, Pneumatic Door-Springs.—18,307, C. Williams, Ratchet Drills.—18,318, O. Imray, Recording Hours and Wages of Operatives, &c.—18,326, G. de Bruyn, Fireproof Ceilings.—18,331, E. Robbins, Cement.—18,338, H. Morris, Valves of Flushing Cisterns, &c.—18,347, G. and F. Couzens, Traps or Interceptors for Drains.—18,353, J. Ford, Fire-grates.

OCTOBER 2.—18,381, A. Hindley, Concreting Floors, &c.—18,399, J. Barron, Access to and Ventilation of Drains, with Reducing Sockets for Soil and other Pipes.—18,409, G. de Bruyn, Fireproof Ceilings.

OCTOBER 3.—18,438, T. Clark, Flushing Cisterns for Water-closets.—18,441, W. McLifsh, Burglar-proof Window-fastener.—11,449, J. Dougan and J. McMillan, Materials for making Damp-proof Courses in Buildings and Roadways.—18,450, J. Dougan and J. McMillan, Concrete Floors.—18,452, W. Smith and G. Sellers, Hinges.—18,460, C. Credland, Painters' "Burning-off" Stoves.—18,495, G. de Bruyn, Ceilings.

OCTOBER 4.—18,523, A. Davey, Draught-excluder for Doors.—18,532, P. Hart, Ventilating Sewers.—18,576, G. de Bruyn, Slabs for Building Purposes, &c.

OCTOBER 5.—18,616, T. Atkins, Flushing Cisterns.—18,655, W. Youlten, Casements.—18,669, C. Heyworth, Lavatory Wash-basins, &c.—18,676, W. Breffit, Window-fasteners.—18,684, F. Gätcke, Ventilating Buildings.

PROVISIONAL SPECIFICATIONS ACCEPTED.

15,763, R. Wagner, Partitions for Use in Tunnels, &c.—16,656, J. Ross and A. Heiron, Paint, &c.—16,933, A. Hircock, Water-taps and Valves.—17,227, H. Stanton, Fire-resisting Floors.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

18,654, A. Adams, Bolts, Locks, Latches, &c.—22,283, G. Napier, Sliding and Swivelling Doors and Partitions.—22,908, E. Chatelain, Water-closets, &c.—23,407, S. Gratrix, jun., and others, Flushing Cisterns.—108, J. Osman, Continuous Firing Kilns.—16,334, P. Kirkett, Fasteners for Window-sashes, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

SEPTEMBER 25.—By *Walton & Lee* (at Barnsley) Six blocks of building land, Mains-st., &c., Wombwell, Yorks., 20 a. 0 r. 9 p., 1,120*l.*; an enclosure of land, 5 a. 0 r. 28 p., Eva Hill Gate-rd., 250*l.*

SEPTEMBER 27.—By *Thompson, Rippon & Co.* (at Exeter): "Nympthayes Farm," Zeal Monacharum, Devon, 72 a. 0 r. 6 p., 1,115*l.*; Great and Little Sutton Fields, 22 a. 2 r. 11 p., 520*l.*—By *Walton & Lee* (at Southampton): Two enclosures of land and two cottages, Hythe-rd., Marchwood, Hants., 5 a. 2 r. 15 p., 280*l.*

SEPTEMBER 30.—By *R. Austin* (at Southampton): "Barton Farm," Milton, Hants., 149 a. 1 r. 36 p., f., 4,000*l.*—By *R. Watson* (at Burnley): "Oaken Eaves" and "Further Barn" farms, Habergham-Eaves, Lancashire, 109 a. 3 r. 38 p., f., 5,600*l.*

OCTOBER 1.—By *Walton & Lee* (at Bedford): A cottage and enclosure of land, Sharnbrook, Beds., 18 a. 0 r. 4 p., f., 1,416*l.*; two freehold villas, 0 a. 1 r. 12 p., r. 38*l.*, 700*l.*; the Post-office, five cottages, two shops and enclosure of land, 2 a. 0 r. 17 p., f., 1,405*l.*; hill farm and two enclosures of land, 209 a. 3 r. 8 p., f., 3,700*l.*—By *Eastman Bros.*: "Woodville," Inglemere-road, Forest Hill, f., 1,400*l.*—By *J. Dawson & Son*; 9 and 10, The Grove, Kentish Town, f., r. 77*l.*, 1,090*l.*

OCTOBER 2.—By *Nash & Son*: 19, Caversham-st., Chelsea, u.t. 56 yrs, g.r. 5*l.*, r. 26*l.*, 305*l.*—By *Hincks & Shakespear* (at Leicester): "Goscote Hall," near Leicester, and nearly 20 acres, f., 6,650*l.*

OCTOBER 3.—By *J. Pritchard* (at Llangefni): "Llyslew Farm," Llanidan, Anglesey, 251 a. 0 r. 11 p., f., 12,200*l.*; "Bryntirion Farm," Llangeinwen, Anglesey, 28½ a., f., 1,610*l.*; "Rhosydd," Newborough, Anglesey, Warren Land, 66 a. 2 r. 23 p., f., 250*l.*—By *J. Hopper* (at Askrigg): A freehold farm, Askrigg, Yorks., containing 54½ a., 3,505*l.*—By *J. Neale Baker* (at Hay); "Lower Gogia," and three other farms, Llowes, &c., Radnor, comprising about 300 a., f., 4,500*l.*—By *Field & Sons*: 20 and 22, Scarsdale-rd., Camberwell, u.t. 36½ yrs. g.r. 7*l.*, 400*l.*: 2, Sedan-st., Walworth, u.t. 55 yrs., g.r. 4*l.*, 230*l.*; 25 and 27, Lant-st. and "The Prince of Wales" Beer House, Southwark, f., r. 13*l.*, 1,850*l.*—By *E. Wood*: 85 and 87, Sandilands-rd., Fulham, u.t. 87 yrs., g.r. 9*l.*, 220*l.*; 23, Kathleen-rd., Clapham, u.t. 92 yrs., g.r. 7*l.* 10*s.*, r. 35*l.*, 310*l.*; 74, Upper Tollington-park, Stroud Green, u.t. 81 yrs., g.r. 10*l.*, 500*l.*: 12, Avington-grove, Penge, u.t. 67 yrs., g.r. 8*l.*, 245*l.*—By *Newbon & Co.*: 50, Gibson-sq., Islington, u.t. 32 yrs., g.r. 10*l.*, e.r. 50*l.*, 320*l.*; 355, Liverpool-rd., u.t. 13¾ yrs., g.r. 5*l.*, e.r. 40*l.*, 125*l.*; 18 and 20, Sparsholt-rd., Crouch Hill, u.t. 51 yrs., g.r. 11*l.*, r. 72*l.*, 525*l.*

OCTOBER 4.—By *J. Hibbard & Sons*: 8 and 10, Underhill-rd., and 1, Connaught villas, Dulwich, f., r. 18*l.*, 2,500*l.*; 72, College-st., Chelsea, u.t. 13 yrs., g.r. nil., r. 24*l.*, 110*l.*; Leader-st., i.g.r. 8*l.*, u.t. 13 yrs., g.r. nil, 70*l.*—By *Maddox, Son, & Green*: 45, 47, and 49, Chetwynd-rd., Kentish Town, u.t. 78¼ yrs., g.r. 22*l.* 1s., r. 111*l.*, 960*l.*—By *James Harris & Son* (at Winchester): "The Lainston Estate," near Winchester, 1,202 a. 3 r. 26 p., f., 18,750*l.*; "West Wood," 55 a. 2 r. 32 p., f., 625*l.*; enclosures of land and a cottage, Meonstoke, Hants., 113 a. 2 r. 27 p., f., 2,380*l.*: "King's Farm," 2 a. 1 r. 37 p., f., 290*l.*—By *Allan Herbert* (at Andover): 62, High-st., Andover, f., r. 30*l.*, 520*l.*; 23, East-st., f., r. 20*l.*, 410*l.*; 20, Winchester-street, and a plot of bldg. land, f., r. 28*l.* 5s., 470*l.*; 11 and 12, South-st., f., 150*l.*; 19 and 21, New-st., f., r. 25*l.*, 350*l.*; an enclosure of land, Bere Hill, 36 a. 0 r. 2 p., f., 360*l.*

OCTOBER 5.—By *E. Evans* (at Stafford): Four enclosures of land, Tillington, Staffs., 9 a., f., 690*l.*; enclosures of land, Marston, Staffs., 38 a. 3 r. 15 p., f., 1,190*l.*; enclosures of land, Church Eaton, Staffs., 16 a. 3 r. 25 p., f., 680*l.*; two houses, shops, and other premises, and three enclosures of land, 4 a. 0 r. 39 p., f., 705*l.*

OCTOBER 7.—By *A. Chancellor & Sons*: "Park Lodge," and three acres, f., Sunningdale, Berks, sold privately.—By *Horton Ledger* (at Brighton): Four plots of bldg. land, Park-rd., West, Brighton, Sussex, f., 286*l.*; six plots of bldg. land, Freshfield-rd., f., 378*l.*; twenty-seven plots of bldg. land, Freshfield-ter., f., 2,001*l.*

OCTOBER 8.—By *C. W. Davies*: 91, White Lion-st., Islington, u.t. 10 yrs., g.r. 32*l.* 10s., 45*l.*; 4, Witley-rd., Holloway, u.t. 67¾ yrs., g.r. 5*l.* 5s., r. 30*l.*, 270*l.*: 17 and 19, Dorinda-st., Barnsbury, f., r. 57*l.* 4s., 525*l.*—By *Kandall, Beard, & Baker*: 2, 3, & 4, Bedford-ter., Finchley, u.t. 86 yrs., g.r. 18*l.*, r. 86*l.*, 400*l.*—By *R. Tidey & Son*: 27 and 28, Victoria-rd., Stoke Newington, u.t. 48½ yrs., g.r. 6*l.*, 440*l.*; 56 and 58, Hackford-rd., Brixton, u.t. 4 yrs., g.r. 15*l.*, r. 78*l.*, 75*l.*—By *Debenham, Tewson, & Co.*: 7, Essex-st., Strand, area 1,070 ft., f., r. 225*l.*, 5,200*l.*; 22 to 44 (even), Bedford-rd., Ealing, u.t. 82¾ yrs., g.r. 48*l.*, 1,985*l.*—By *W. H. & J. A. Eadon* (at Sheffield): A freehold residence, Fulwood, Yorks, area 4,844 sq. yds., 2,950*l.*—By *W. Wilson & Son* (at Manchester): "Sedgeley Hall," Prestwich, Lancs. comprising 17 a. 0 r. 32 p., f., 2,020*l.*; a freehold farm, comprising 38 a. 2 r. 28 p., f., 4,450*l.*; "The West Lodge," f., 180*l.*

OCTOBER 9.—By *Wagstaff & Warman*: 50, Noel-st., Islington, u.t. 37 yrs., g.r. 6*l.* 6s., e.r. 45*l.*, 305*l.*; 66, Hamilton-rd., Highbury, u.t. 55 yrs., g.r. 6*l.*, e.r. 50*l.*, 570*l.*; 75 and 77, Victoria-rd., Stroud Green, u.t. 80 yrs., g.r. 13*l.*, r. 80*l.*, 710*l.*—By *Carey & Lewis*: A plot of bldg. land, Wallwood-rd., Leytonstone, f., 250*l.*—By *E. W. Richardson & Son*: 7, Clarence-ter., Regent's-pk., u.t. 26¾ yrs., g.r. 60*l.*, e.r. 200*l.*, 1,500*l.*—By *Maple & Co.*: 5 and 7, Craven-pk., Harlesden, u.t. 81 yrs., g.r. 35*l.* 10s., r. 165*l.*, 1,710*l.*—By *H. Griffin*: 8, Henrietta-rd., Tottenham, u.t. 74 yrs, g.r. 6*l.* 10s, 80*l.*; 20, Trevelyan-rd., Stratford, u.t. 83 yrs., g.r. 4*l.* 10s., 95*l.*; 37, Cambridge-st., Pimlico, u.t. 31 yrs., g.r. 7*l.*, r. 55*l.*, 400*l.*; 11, Knox-rd., Battersea, f., r. 20*l.* 16s., 205*l.*—By *Mackenzie & Black, W. S.* (at Edinburgh); "The Wells Estate," Cavers, &c., Roxburgh, comprising 2,700 acres, 39,600*l.*

OCTOBER 10.—By *Farebrother, Ellis, Clark, & Co.*: 17, Denmark-av., Wimbledon, f., 1,080*l.*; A bldg. site, Upper-st., &c., Islington, area 7,722 ft., f., 4,340*l.*; f. g. r., High-rd., &c., Kilburn, 225*l.*, reversion in 28 yrs., 9,550*l.*; 1, Fountayne-rd., Stoke Newington, l., 81 yrs., g.r. 17*l.* 10s., 1,020*l.*; 112, St. Paul's-rd, Islington, u.t. 29 yrs., g.r. 8*l.*, r. 52*l.*, 345*l.*; 1, 8, and 10, Forest-rd., Walthamstow, copyhold, r., 47*l.* 7s., 220*l.*—By *C. C. & T. Moore*: 18, 22, 24, 26, 28, and 30, Canal-rd., Mile End., u.t., 13 yrs., g.r. 17*l.* 15s., 700*l.*; 32, Canal-rd., u.t. 14 yrs., g.r. 2*l.* 10s., 36, Canal-rd., u.t. 17 yrs., g.r. 2*l.* 10s., 250*l.*; 13 and 15, Coutts'-rd., u.t. 60 yrs., g.r. 7*l.* 9s., 270*l.*; 95, 97, and 99, Station-rd., Forest Gate, u.t. 83¼ yrs.,

g.r. 12*l.*, 420*l.*; 93, Downs-rd., Clapton, f., e.r. 60*l.*, 650*l.*; 124 and 125, Cadogan-ter., Victoria-pk., f., r. 60*l.*, 835*l.*—By *J. W. Morley & Letts:* Nos. 163, 167, and 177, Shaftesbury-av., u.t. 34 yrs., g.r. 126*l.*, 815*l.*; 1, 2, and 3, Stanmore-pl., Camden Town, u.t. 28 yrs., g.r. 12*l.*, 335*l.*—By *Newbon & Co.:* 17 to 21, Caroline-pl., Chelsea, f., 1,440*l.*; 32 and 33, Victoria-st., Barnsbury, f., r. 48*l.*, 470*l.*; 63 and 65, Axe-st., Barking, f., r. 28*l.* 12*s.*, 220*l.*; 20, Palmerston-rd., Holloway, u.t. 69 yrs., g.r. 7*l.*, r. 30*l.*, 205*l.*; 36, Weymouth-ter., Hackney, u.t. 61 yrs., g.r. 7*l.*, r. 36*l.*, 220*l.*; 30 and 32, Hyde-rd., Hoxton, u.t. 41 yrs., g.r. 13*l.*, r. 82*l.*, 510*l.*; 2, Marson-st., u.t. 8 yrs., g.r. nil, 40*l.*; 4 and 6, Templar-rd., Homerton, u.t. 66 yrs., g.r. 7*l.*, 250*l.*; 8, 12, and 16, Harrison-st., Gray's Inn-rd., u.t. 6 yrs., g.r. 31*l.* 10*s.*, r. 135*l.*, 109*l.*; 15, Mabledon-pl., Euston-rd., u.t. 11 yrs., g.r. 21*l.*, 100*l.*; 18, York-bldgs., Strand, u.t. 12 yrs., g.r. 55*l.*, r. 115*l.*, 56*l.*; 10 and 11, Hermes-st., Pentonville, and 7 and 8, Prospect-row, u.t. 15½ yrs., g.r. 32*l.* 10*s.*, 125*l.*—By *Norman & Son:* 10, Sebert-rd., Forest Gate, u.t. 81 yrs., g.r. 6*l.*, e.r. 45*l.*, 360*l.*; 239, Leytonstone-rd., Stratford, u.t. 51 yrs., g.r. 10*l.*, e.r. 50*l.*, 355*l.*—By *Stimson & Sons:* 6, Park-rd., Wandsworth, f., e.r. 32*l.*, 390*l.*; 28, Wyndham-st., Marylebone, f., r. 50*l.*, 1,020*l.*; a rental of 161*l.* per ann., East-rd., Hoxton, u.t. 4 yrs., 170*l.*; "Arundel House," Barnard Hill, Muswell Hill, f., e.r. 55*l.*, 700*l.*; 35 to 45 (odd), Collingwood-st., Blackfriars, u.t. 26½ yrs., g.r. 27*l.*, 790*l.*; 124, Lorrimore-rd., Walworth, u.t. 54 yrs., g.r. 4*l.* 10*s.*, 350*l.*; 14, 16, and 18, Palace-sq., Norwood, u.t. 60 yrs., g.r. 15*l.* 10*s.*, 415*l.*; 28, 30, and 32, Palace-sq., u.t. 60 yrs., g.r. 15*l.* 10*s.*, 550*l.*; 38 to 46 (even), Khyber-rd., Battersea, u.t. 82 yrs., g.r. 25*l.*, 1,150*l.*; 56, Hawthorn-grove, Penge, f., r. 28*l.* 12*l.*, 295*l.*; 54, Woodbine-grove, f., r. 28*l.* 12*s.*, 260*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; l.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	8/0/0	0/0/0
Teak, E.I. ..load	10/0/0	16/0/0
Sequoia, U.S. ft.cu	1/7	1/10
Ash, Canada load	3/0/0	4/5/0
Birch, do.	2/0/0	3/5/0
Elm, do.	3/15/0	5/0/0
Fir, Dantsic, &c.	2/0/0	3/10/0
Oak, do.	2/15/0	4/15/0
Canada	6/5/0	7/15/0
Pine, Canada red	0/0/0	0/0/0
Do. Yellow	2/10/0	4/15/0
Lath, Dantsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	2/15/0	5/0/0
Odessa, crown	2/15/0	5/0/0
Deals, Finland 2nd & 1st std 100	7/0/0	8/10/0
Do. 4th & 3rd ..	7/0/0	8/0/0
Do. Riga	7/0/0	8/0/0
St. Petersburg, 1st yellow	9/10/0	12/0/0
Do. 2nd yellow	7/10/0	9/0/0
Do. white	8/0/0	9/10/0
Swedish	7/0/0	15/10/0
White Sea	7/5/0	14/0/0
Canada, Pine 1st	21/0/0	24/0/0
Do. do. 2nd	16/0/0	17/0/0
Do. do. 3rd, &c.	8/0/0	10/0/0
Do. Spruce, 1st..	9/0/0	10/10/0
Do. do. 3rd and 2nd	6/10/0	7/10/0
New Brunswick	6/0/0	7/0/0
Battens, all kinds	5/0/0	21/0/0
Flooring boards, sq., 1 in. prep. 1st	0/9/6	0/14/6
Do. 2nd	0/6/6	0/11/6
Other qualities	0/4/6	0/7/6
Cedar, Cuba ..ft.	3½	4½
Honduras, &c.	3½	4½
Mahogany, Cuba	/3	/6
St. Domingo, cargo av.	/3	1/0
Mexican do. do.	/3	/4
Tobasco do. do.	/3½	/6
Honduras do..	/3½	/5½
Box, Turkey ton	4/0/0	15/0/0
Rose, Rio	7/0/0	16/0/0
Bahia	6/0/0	15/0/0
Satin, St. Domingo	0/0/5	0/1/0

TIMBER (*continued*).		
Satin, Porto Rico	0/0/6	0/1/6
Walnut, Italian	0/0/3	0/0/7
METALS.		
Iron—Pig, in Scotland ton	2/7/1	0/0/0
Bar, Welsh, in London	5/12/6	5/15/0
Do. do. at works in Wales	5/2/6	5/5/0
Do. Staffordshire, in London	6/0/0	6/10/0
COPPER—British cake and ingot	49/15/0	50/5/0
Best selected ..	50/10/0	51/0/0
Sheets, strong..	57/0/0	0/0/0
Chili bars	46/1/3	46/6/3
YELLOW METAL	0/0/4 9-16	0/0/4⅝
LEAD—Pig, Spanish ton	11/5/0	0/0/0
English com. brands	11/6/3	11/8/9
Sheet, English, 6 lbs. per sq. ft. and upwards ..	12/5/0	12 7.6
Pipe	12/10/0	0/0/0
ZINC—English sheet ton	18/5/0	18/10/0
Vieille Montagne	18/15/0	0/0/0
TIN—Straits	65/17/6	66/7/6
Australian	67/0/0	67/10/0
English Ingots.	69/5/0	69/10/0
Banca	66/10/0	66/15/0
Billiton	65/10/0	66/0/0
OILS.		
Linseed ton	20/5/0	20/15/0
Cocoanut, Cochin	24/0/0	0/0/0
Do. Ceylon	22/15/0	23/0/0
Palm, Lagos	23/10/0	0/0/0
Rapeseed, English pale	22/15/0	23/0/0
Do. brown	21/5/0	21/10/0
Cottonseed ref. .	17/5/0	17/15/0
Oleine	19/10/0	20/10/0
Lubricating, U.S.	5/6/0	8/0/0
Do. black	4/0/0	6/6/0
TAR—Stockholm barrel	0/19/6	0/0/0
Archangel	0/15/0	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender.]

ASHTON-UNDER-LYNE.—For sewering, draining, paving, &c., Adam-street. Mr. J. T. Earnshaw, C.E., Borough Surveyor, Town Hall, Ashton-under-Lyne. Quantities by Borough Surveyor:—
W. Neal, Ashton-under-Lyne* ... } Schedule list
J. W. Brierley ... } of prices.
* Accepted.

BARNET.—For providing and laying 15,000 square yards indurated slab-paving, for the Urban District Council. Mr. W. H. Mansbridge, Surveyor, 40, High-street, Barnet:—

Elliotts	£5,284	9	0	Wimpey ‡	£3,704	0	0
Gibson	4,388	0	0	Imperial Stone Co.	3,696	0	0
Nickolls	4,071	0	0	Griffiths	3,577	0	0
Gibbs *	3,937	5	4	Gibbs§	3,562	8	4
Gibbs †	3,929	7	3	Adams	3,548	0	0
Wimpey	3,828	0	0	Victoria Stone Co.	3,528	0	0
Hobman	3,792	6	6	Stuart's Granolithic	3,398	0	0
Patent Indurated ..	3,760	0	0	Wilkinson & Co.	3,284	10	0
Croft Granite Co. ..	3,714	7	0				

[Surveyor's estimate, £3,830.]
* For Imperial stone. ‡ Croft adamant.
† Stuart's granolithic. § Victoria indurated.

BARNET.—For providing and laying 2,300 ft. granite kerbs and channels, also 3,400 ft. granite channels only, for the Urban District Council. Mr. W. H. Mansbridge, surveyor, 40, High-street, Barnet:—

Mowlem & Co.	£969	0	0	Griffeths	£765	0	0
Williamson & Sons ..	894	0	0	Bell	760	0	0
Gibson	870	0	0	Nickolls	741	0	0
Wimpey	856	0	0	Gibbs	681	18	4
Adams	793	0	0				

[Surveyor's estimate, £840.]

BATH.—For laying water-mains, &c., for the Waterworks Committee. Mr. C. Gilby, Engineer, Guildhall, Bath:—

Alfred Wills & Son	£345	15	8	Charles Haines	£306	17	11
Charles Ruddick	327	19	9	William Birth	216	14	10
Stephen Ambrose	316	17	0				

[All of Bath.]
[Engineer's estimate, £319 16s. 10d.]

BEDLINGTON (Northumberland).—Accepted for the supply of 1,600 tons whinstone and 300 tons limestone, for the Urban District Council. Mr. Cooper, Surveyor, Bedlington:—

	s.	d.
Appleby & Co., Chathill	7	10 2 in. half-broken Whinstone.
Northumberland Whinstone Co., Newcastle	7	1 2½ in. " "
C. W. Harrison, Newcastle	6	6 2½ in. " " limestone.

BRIDLINGTON.—For laying sewers, and other works, Vernon-street, for Cowton's Charity Trustees. Mr. J. Earnshaw, surveyor, Wellington-road, Bridlington Quay:—

J. H. Hudson	£498	10	0
B. Robinson	349	16	0
I. N. Davison	347	12	2
Wm. Barnes	£329	19	0
A. H. Atkinson, Hull (accepted)	320	0	0

BRIGHTON.—For alterations and additions to the North-street Brewery, Brighton, for Messrs. Smithers & Son. Messrs. Inskipp & Mackenzie, architects, 5, Bedford-row, London, W.C.:—

J. Barnes	£1,477	G. Lynn & Sons	£1,286
Botting & Sons	1,457	N. P. Freeman*	1,163
H. Winn	1,387		

* Accepted.

CARSHALTON.—For the construction of sewers, &c., Harold and Lower-roads, for the Urban District Council. Mr. R. A. Wilson, Surveyor to the Council:—

D. H. Porter	£249	0	G. Burrage	£182	0
E. Iles	245	0	J. Hudson, Streatham-Hill Station*	149	15
C. McGee	197	17			

* Accepted.

CHESHUNT (Waltham Cross).—For kerbing, &c., Railway- and part of King Edward-roads, for the Urban District Council. Mr. S. Towlson, Surveyor, Turner Hill, Cheshunt:—

	Railway-road.			King Edward-road.		
W. Griffiths	£293	10	0	239	0	0
Killingback & Co.	277	0	0	273	0	0
W. Nichols	243	0	0	239	0	0
T. Adams	233	0	0	194	0	0
Chas. White	225	0	0	227	0	0
Gibbs & Co.	213	10	6	266	1	9
Wadey & Co.	199	0	0	187	0	0
E. J. Betts, Enfield (accepted)	198	0	0	179	0	0

DARLASTON.—For alterations to Hartwell Hall, for Mr. G. F. Paddock. Quantities by Messrs. R. Scrivener & Sons, Hanley:—

G. Ellis	£557	Tompkinson & Betteller	£447
T. Godwin	457	W. Whitfield, Stone*	420

* Accepted.

DROYLSDEN (near Manchester).—Accepted for building six stall-stable and harness-room, for Messrs. J. Robertson & Co., Preserve Works, Droylsden. Messrs. George & Son, architects, Old Square, Ashton-under-Lyne:—
Hannah Fielding, Droylsden ... £235

EAST HAM.—Accepted for the supply of broken Guernsey and Quenast granite, for the Urban District Council. Mr. Savage, Surveyor, Public Offices, East Ham:—
A. & F. Manuelle, 101, Leadenhall-street—

	s.	d.		
1½ in. Guernsey granite	14	8	per yd., delivered in Romford-rd.	
" " "	14	6	" "	Barking-rd.
" " "	13	11	" "	N. Woolwich.

Chas. M. Manuelle, 12, Lime-street—

	s.	d.	
1½-in. Quenast	13	6	per yd., delivered in Barking-rd.

FOLKESTONE.—For the construction of two underground conveniences, Radnor Park Bridge and Foord-road, for the Corporation. Mr. John White, Borough Engineer, Dover-road, Folkestone. Quantities by the Borough Engineer:—

T. L. Fearon	£535	0	J. Q. Petts & Son	£398	0
J. Newman	445	10	Hayward & Paramor*	328	0

[All of Folkestone.]
[Borough Engineer's estimate, £380.]
* Accepted.

GODALMING.—For the execution of road-works within the borough. Mr. Samuel Welman, Borough Surveyor, Church-street, Godalming. Quantities by Borough Surveyor:—

Thos. Adams	£2,459	0	0	Streeter Bros., East Croydon *	£1,971	16	10
Edward Steer	2,388	11	8				
G. A. Franks	2,057	8	8				

* Accepted, subject to satisfactory reference.

GODALMING.—For the erection of house, Peperharow-road. Mr. Robt. J. Beale, architect, 9, Victoria-street, Westminster:—

F. Milton	£990	J. W. Humphreys, Godalming *	£865
S. Horn	919		

* Accepted, subject to modifications.

GRAYS (Essex).—For the supply of 9,000 yards concrete kerbing, for the Urban District Council. Mr. A. C. James, Surveyor, Urban District Council Offices, Grays:—

	Price per Yard. A. s. d.	B. s. d.
Imperial Stone Co.	3 9	—
Hindley & Co.	4 8	—
W. B. Wilkinson & Co.	4 0	3 3
A. Rickett & Sons	3 9	3 0
The Brecon Stone Co.	2 3	—
J. C. Trueman	—	2 4
Shap Granite Co.	4 0	4 6 and 4 4
Victoria Stone Co.	—	6 0
Stuart & Co.	2 7½	3 3½
Mowlem & Co.	—	2 9
Kent Road Maintenance Co.	—	2 5½
C. Foxon	—	4 9
Blichfelot & Co.	—	3 2*
E. J. Van Praagh & Co.	—	3 7½*

A.—Surveyor's specification. B.—Contractor's specification.
* Norway granite.

GRAYS (Essex).—For the supply of 1,750 tons broken granite or quartzite, for the Grays Thurrock Urban District Council. Mr. A. C. James, surveyor, 53, High-street, Grays:—

	Price per ton. 1½ in. s. d.	1½ in. s. d.	
Kent Road Maintenance Co.	9 9	10 0	Quartzite.
L. Sommerfeld	9 11	10 4	"
A. & F. Manuelle	11 7	12 0	Guernsey.
R. L. & J. Fennings	12 0	12 3	"
J. Mowlem & Co.	11 6	11 6	"
W. Griffiths	11 3	11 3	"
W. Muir & Co.	11 0	10 6	"
E. J. & C. Goldsmith	9 8	—	Not stated.
The Whitwick Granite Co.	13 0	12 0	Leicestershire.
The Enderby and Stoney Stanton Granite Co.	12 6	12 6	"
C. M. Manuelle	10 4	—	Quenast
Ellis & Grahamsby	9 4	9 5	Scotch (Fifeshire).
S. Trickett & Sons	11 0	—	Cornish.
Kaltenbach & Schmitz	9 3	9 6	Belgian (Bierghes).
J. L. Lyons & Co., London *	8 5	8 6	German Basalt.

* Accepted.

HALE (Cheshire).—For paving, sewering, &c., Broom-road, for the Bucklow Rural District Council. Mr. J. M. D. McKenzie, Surveyor, Lossie Bank, Hale:—
William Barton ... £235

HERRING FLEET.—For erecting a residence at Herring Fleet, in Suffolk, for Mr. Hy. Andrews. Mr. Jno. W. Howard, architect, Norwich. Quantities by the architect:—

W. A. Read	£1,210 0
J. S. Smith	1,175 0
Chasten, Grimson, & Elden	1,093 10
Daws & Son, Norwich (accepted)	1,064 0

LLANDAFF YARD.—For rebuilding two houses, for Mr. Geo. Bendle. Mr. C. Telford Evans, architect, Cardiff:—

B. Evans	£550	J. P. Powell, 11, Woodville-road, Cardiff (accepted)	£310
W. G. James	450		
W. H. Hewitt	400		

LONDON.—For building new garden-wall and gates at Grosvenor House, Park-lane, for His Grace the Duke of Westminster, K.G.:—
Walter Holt & Sons, Croydon ... £3,340

LONDON.—Accepted for the erection of seven houses, Hans-crescent, Belgravia, S.W., for the Belgravia Estate, Ltd. Messrs. Read & Macdonald, architects. Quantities by Mr. W. H. Elsmore:—
Stephens, Bastow, & Co., Ltd. ... £29,000

LONDON.—Accepted for rebuilding warehouse, stable, and coach-house, 22A, Church-street, Essex-road, Islington. Messrs. Edward Saunders & Son, architects. Quantities supplied:—
J. O. Richardson ... £739

LONDON.—For alterations to the "Queen Victoria" public-house, Woolwich. Mr. J. O. Cook, architect:—

Munday & Son	£1,340	Proctor	£995
Kirk & Randall	1,203	J. O. Richardson	986
Holloway	1,098		

LONDON.—For erecting three shops and houses in Rye-lane, Peckham. Mr. Allan Stuart, architect:—

Killby & Gayford	£3,298	Edwards & Medway	£3,122
J. O. Richardson	3,223	Smith	3,097
Parker	3,159		

LONDON.—For the construction of roadways, paths, and sewering for Melrose-avenue, Cranhurst-, Chandos-, and Riffel-roads, on the Walm-lane Estate, Willesden Green, N.W. Messrs. Allen & Hoar, surveyors, "Inglewood House," West End-lane, West Hampstead. Quantities by the surveyors:—

H. Sabey & Co.	£10,374	1	9
Streeter Bros.	9,720	7	6
James Dickson ..	9,684	9	1
Solden Hipwell ..	9,172	0	0
John Jackson	8,980	0	0
William Wadey ..	8,560	11	0
Sydney Hudson ..	8,448	0	0
William Griffiths ..	8,137	6	3
H. B. & A. F. James	7,834	10	11
G. Wimpey & Co.	7,819	0	0
Jas. E. Bloomfield	7,810	3	3
E. Rogers & Co.	7,797	0	0
W. Lee & Son	7,788	3	11
A. T. Catley	7,780	0	0
Geo. Bell	7,761	0	0
Eli. Wilson	£7,622	0	0
W. H. Saunders & Co.	7,394	10	0
S. Kavanagh	7,300	12	11
Edmund Iles	7,179	5	7
E. W. Hollingsworth	7,083	0	0
Thomas Adams	7,052	0	0
Nowell & Robson .	6,935	0	0
C. W. Killingback & Co.	6,830	14	3
W. Neave & Son .	6,451	0	0
R. Ballard & Co., Ltd. (accepted)	5,799	0	0

LONDON.—For pulling down and rebuilding "The Waterman's Arms," Swan-lane, Rotherhithe, for Messrs. Campbell, Johnson, & Co., Phœnix Brewery, Notting Hill, W. Mr. J. H. Richardson, architect, 270, Uxbridge-road, W.:—

Wempkin	£758	Courtney & Fairlin	£669
Collins	734	T. Bendon (accepted)	660
Atherton & Dolman	690		

LONDON.—For alterations and additions to premises, East-road, Hoxton, for Messrs. Dottridge Bros. Mr. J. Henry Richardson, architect, 270, Uxbridge-road:—

Beer & Gash	£473	0	Todd	£423	10
Ivory	447	0	Welbking & Sons *	388	15
Bream	427	0			

* Accepted.

LONDON.—For building new soap-cutting room at Messrs. T. H. Harris & Son's factory, Stratford, E. Mr. J. W. Brooker, architect:—

Green & Co.	£979	Hosking	£887
Edwards & Medway	927	Battley, Sons, & Holness	847
Clark, jun.	894		

LONDON.—For alterations to laundry, new clothes stores, &c., at the workhouse, Greenwich. Mr. Thomas Dinwiddy, architect:—

T. Linfield	£537	Jones & Groves	£439
A. J. Ware	522	W. Thorn	398
R. Soper	510	Wilson	359
E. Mills	467	O. Scotney & Co.*	323
W. Mills	443		

* Accepted.

LONDON.—For providing and fixing a new vertical boiler and hot-water coils in the boys' and girls' departments of the Alton-street School, Bromley, for the School Board for London:—

Potter & Sons, Ltd.	£135	0	Vaughan & Brown	£108	0
G. Davis	130	0	J. & F. May	105	0
W. G. Cannon & Sons	125	0	J. F. Clarke & Sons*	84	0
J. Wontner-Smith, Gray, & Co.	109	18			

* Accepted.

LONDON.—For overhauling the system of high-pressure hot-water apparatus at the Crampton-street School, Newington, and for other work, for the School Board for London:—

J. Wontner-Smith, Gray, & Co.	£387	Vaughan & Brown	£250
J. L. Bacon & Co.	318	J. Fraser & Son, Millwall *	196

* Accepted.

LONDON.—For a complete system of low-pressure hot-water apparatus for the School in Haggerston-road, Shoreditch, for the School Board for London. Mr. T. J. Bailey, Architect:—

Maguire & Son	£792	10	Wenham & Waters, Ltd.	£590	0
R. H. & J. Pearson	770	0	J. & F. May	587	0
W. G. Cannon & Sons	694	0	J. F. Clarke & Sons, Featherstone-street, E.C.*	549	0
Fraser & Son	688	0			
J. Gray	614	0			

* Accepted.

LONDON.—For a complete new system of heating at the school in Wolverley-street, Bethnal Green, for the School Board for London. Mr. T. J. Bailey, Architect:—

J. Wontner-Smith, Gray, & Co.	£565	0	Comyn Ching & Co.	£475	0
R. H. & J. Pearson, Ltd.	530	0	Wenham & Waters, Ltd.	430	0
Maguire & Son	529	12	J. & F. May	410	0
Russell & Co.	513	0	W. G. Cannon & Sons, Southwark (accepted)	398	10

LONDON.—For paving with asphalt Staff-, Henrietta-, and Welsh-streets, for the Vestry of St. Leonard, Shoreditch. Mr. T. Ridyard Roscoe, Surveyor, Town Hall, Old-street, E.C.:—

	£	s.	d.	
The French Asphalte Co. ..	581	3	5	Footways and carriageways.
The Limmer Asphalte Co. ..	558	0	9	„ „
W. Griffiths	537	5	0	„ „
The Brunswick Rock Asphalte Paving Co.	524	6	10	„ „
The Val-de-Travers Asphalte Paving Co.....	520	10	9	„ „
The Asphaltic Limestone Concrete Co.....	149	0	6	Footways only.

NUNEATON.—For the erection of National Schools for 400 children at Abbey Green. Messrs. J. R. Veall & Son, architects, Wolverhampton:—

			Guest & Son	£1,740	0	0
H. Lovatt	£2,081	0 0	Kelly & Son.....	1,600	4	0
T. Gudgeon	2,010	0 0	T. Smith	1,564	0	0
Willcock & Co.	1,890	0 0	Joshua Wilson, Nun-			
Swain & Winter....	1,882	3 8	eaton (accepted)..	1,518	0	0
H. Gough	1,786	0 0				

ONGAR.—For new stable and shed, at the union house. Mr. R. Mawhood, architect, Chelmsford:—

			H. Barlow (accepted)	£155
F. Noble & Son.....	£196		[All of Ongar.]	
R. Lemon.....	159			

POCKLINGTON (Yorks.).—For additions to workhouse, for the Union Guardians. Mr. H. L. Tacon, architect, 11, Westgate, Rotherham. Quantities by architect:—

			A. Lyons	£4,425	0	0
C. Berkill	£4,945	12 5	Kelsey & Sons	4,415	0	0
J. Keswick	4,864	0 0	R. J. Foley	4,326	0	0
W. Bellarby	4,772	5 0	T. S. Ullathorne,			
Robt. Dent	4,710	0 0	Selby (accepted)..	4,330	7	1
M. Gage	4,610	0 0				
Shepherdson & Co.	4,600	0 0				

PONTEFRACT.—For the execution of road-works, Purston and Featherstone, for the joint property owners. Messrs. Garside & Hedley, engineers, Corn Market, Pontefract:—

			Jos. Speight	£1,495	10	0
Dav. Speight	£1,803	17 10	Mathew Hall	1,491	11	8
A. Brunton & Son	1,673	7 4½	S. & W. Jowett,			
Thos. Lane.....	1,668	12 6	Brighouse*.....	1,387	4	11
Eastwood Bros....	1,641	18 1½				
Jas. Bateman & Co.	1,639	11 9				

* Accepted by the engineers, subject to being approved by the joint owners of the property.

PONTYPOOL.—For paving, kerbing, channelling, &c., streets, for the Urban District Council. Mr. John Powell, Surveyor, District Council Offices, Pontypool:—

Lawson & Co. .... 1s. 2d. per foot lineal for kerbing; 1s. 2d per foot lineal for channelling; paving 6s. 4d. per yard super.

Morgan & Evans, Pontypool*..... 6s. per yard run for kerbing and channelling; paving 6s. per yard super.

* Accepted.

SOUTHAMPTON.—Accepted for the supply of 500 tons broken Guernsey granite, for the Corporation. Mr. W. B. G. Bennett, Borough Surveyor, Municipal Offices, Southampton:—
A. & F. Manuelle..... 10s. 7d. per ton.

SOUTHEND-ON-SEA.—For laying a pipe-sewer, Market-place, for the Corporation. Mr. H. Harlock, Borough Surveyor, Clarence-road, Southend-on-Sea:—

			W. Buxton, Southend-			
T. Adams.....	£167	14 7	on-Sea*	£144	11	8
J. Jackson.....	159	0 0				
E. Iles	145	0 0				

* Accepted.

SOUTHEND.—For the erection of a Cripple's Home at Southend-on-Sea, for the Council of the Ragged School Union. Mr. G. E. Holman, architect, 6, King's Bench Walk, Temple, W.C. Quantities prepared by Mr. Adam K. Ball, 118, Holborn, E.C.:—

			Unsigned Tender	3,345
E. Laurance & Sons.....	£3,878		S. Dark & Son	3,315
McCormick & Sons	3,499		T. White & Son.....	3,218
Baker & Wiseman.....	3,498			
Craig	3,436			

SOUTHWOLD (Suffolk).—For erecting a small detached villa-residence. Mr. Rd. Mawhood, architect, Chelmsford:—

			J. Thompson*	£560	10
R. J. Allen	£620	0	* Accepted.		
B. H. Carter & Son	580	10			

[All of Southwold.]

SPILSBY.—For supplying and laying kerbing and channelling, Burgh Village, for the Rural District Council. Mr. F. J. Dixon, District Surveyor, Spilsby:—

	Brick kerbing and channelling. per yd. s. d.	Granite kerbing only. per yd. s. d.
B. Hibbitt	5 3	3 6
A. J. Elmes	3 6	4 3
J. Kime, Candlesby, Lincs*.....	4 6	2 6

* Accepted

SWAFFHAM (Norfolk).—For alterations to workhouse buildings, for the Union Guardians. Mr. Joshua F. Impson, architect:—

			S. Howlett, Swaffham *	223
Bardell Bros.	£325			
J. F. Impson	257			

[Work to be completed on or before December 24th, 1895.]
* Accepted.

WALTHAMSTOW.—For additions, &c., at the Markhouse-road Girls' School, Walthamstow, for the School Board. Mr. W. A. Longmore, architect, 7, Great Alie-street, E.:—

			R. & E. Evans	£1,898
Kiddle & Sons.....	£2,490		W. Lawrence, Waltham	
Fuller & Son	2,206		Abbey*	1,863
Reed	1,998			

* Accepted.
[Architect's estimate, £1,860.]

WATERLOO (Lancs.).—Accepted for the erection of new infant school and cloak-rooms, for the Methodist New Connexion British School. Messrs. George & Son, architects, Old-square, Ashton-under-Lyne:—
Charles Keswick, Ashton-under-Lyne £332 15

WEMBLEY (Middlesex).—Accepted for the supply of road metalling, &c., for the Urban District Council. Mr. H. H. Humphreys, C.E., Public Offices, Wembley:—

	Per ton. s. d.
Narboro' and Enderby Granite Quarries Co., Ltd, Narboro'....	10 6 1½-in. and 2-in. Granite.
	8 6 Chippings.

WESTON-SUPER-MARE.—For the erection of Council offices. Messrs. Price & Wooler and S. J. Wilde, joint architects, Waterloo-street, Weston-super-Mare. Quantities by the architects:—

			H. A. Forse	£5,020	0	0
Chedzey Bros.	£5,750	0 0	Chas. Taylor	4,710	2	0
Horton & Co.	5,293	0 0	Chas. Addicott, Weston-			
Sidney Wilcox.....	5,267	8 6	super-Mare*.....	4,673	19	6
H. Hoskings	5,133	15 0				
Herbert Shorney ..	5,062	3 10				

* Accepted subject to approval by the Local Government Board.

WILTON (Wilts.).—Accepted for the supply of flints and gravel (either prepared or unprepared) for the repair of the highways within the several parishes comprised in the district, for the Wilton Rural District Council. Mr. John Goulden, District Surveyor, Wilton:—

	Flint, per yard. s. d.		Flints, per yard. s. d.
N. Thring, Hanging Langford	4 3	F. Stratton, Compton Chamberlayne	3 5
A. Cassey, Wilton	4 0	J. Whatley, Stapleford	3 0
J. Compton, Baverstock ..	4 0	E. Thring, Steeple Langford	3 0
E. Draper, Burcombe	3 9	G. Chalke, South Newton	2 9
H. Jarvis, Fovant	3 8	E. Draper, Bishopstone ..	2 9
N. Chalke, Barford St. Martin	3 6	S. Moxham, Ebbesborne..	2 8
A. Whittle, Wylye	3 6	N. Ermur	2 8

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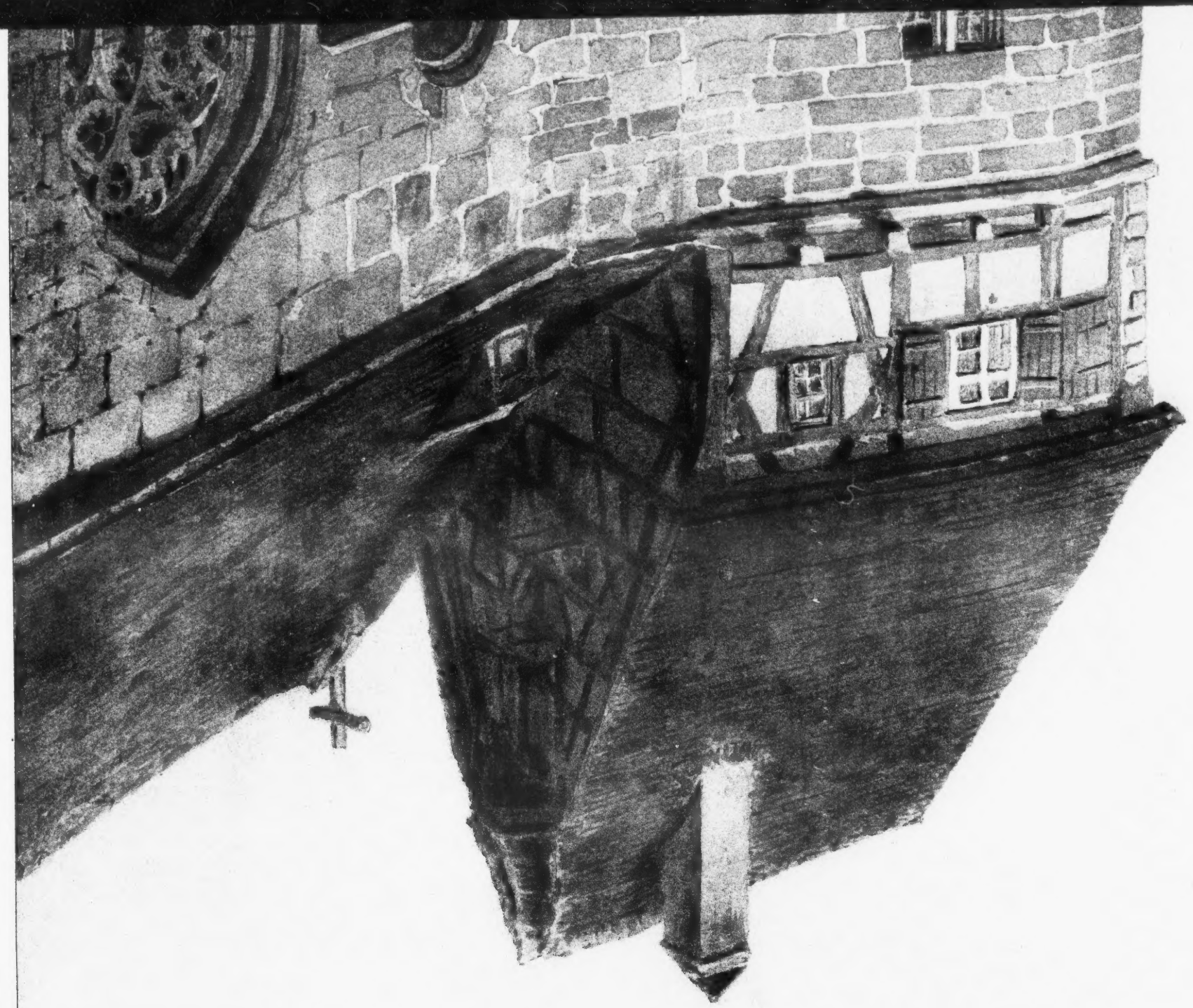

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For Lady Crawshaw

Arthur W Brewill
&
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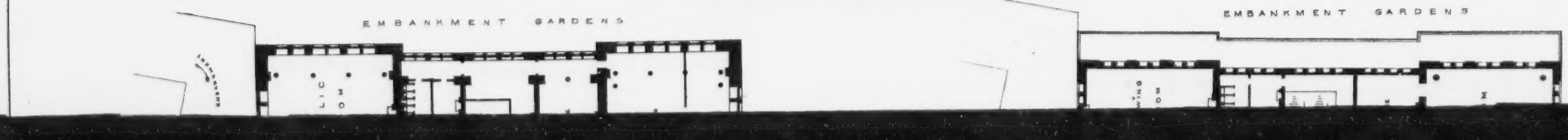

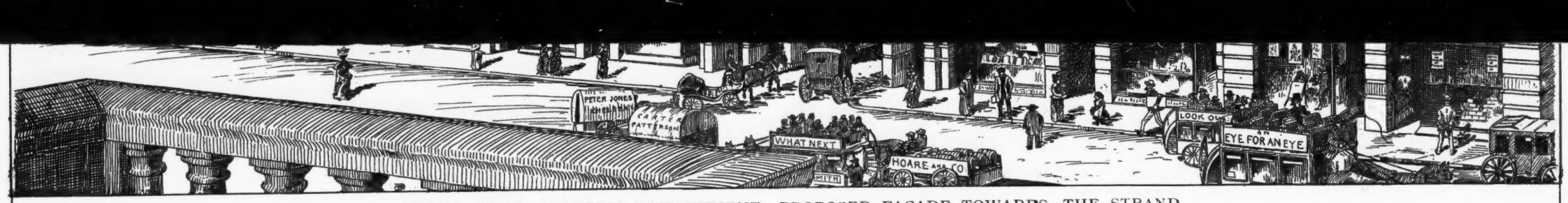

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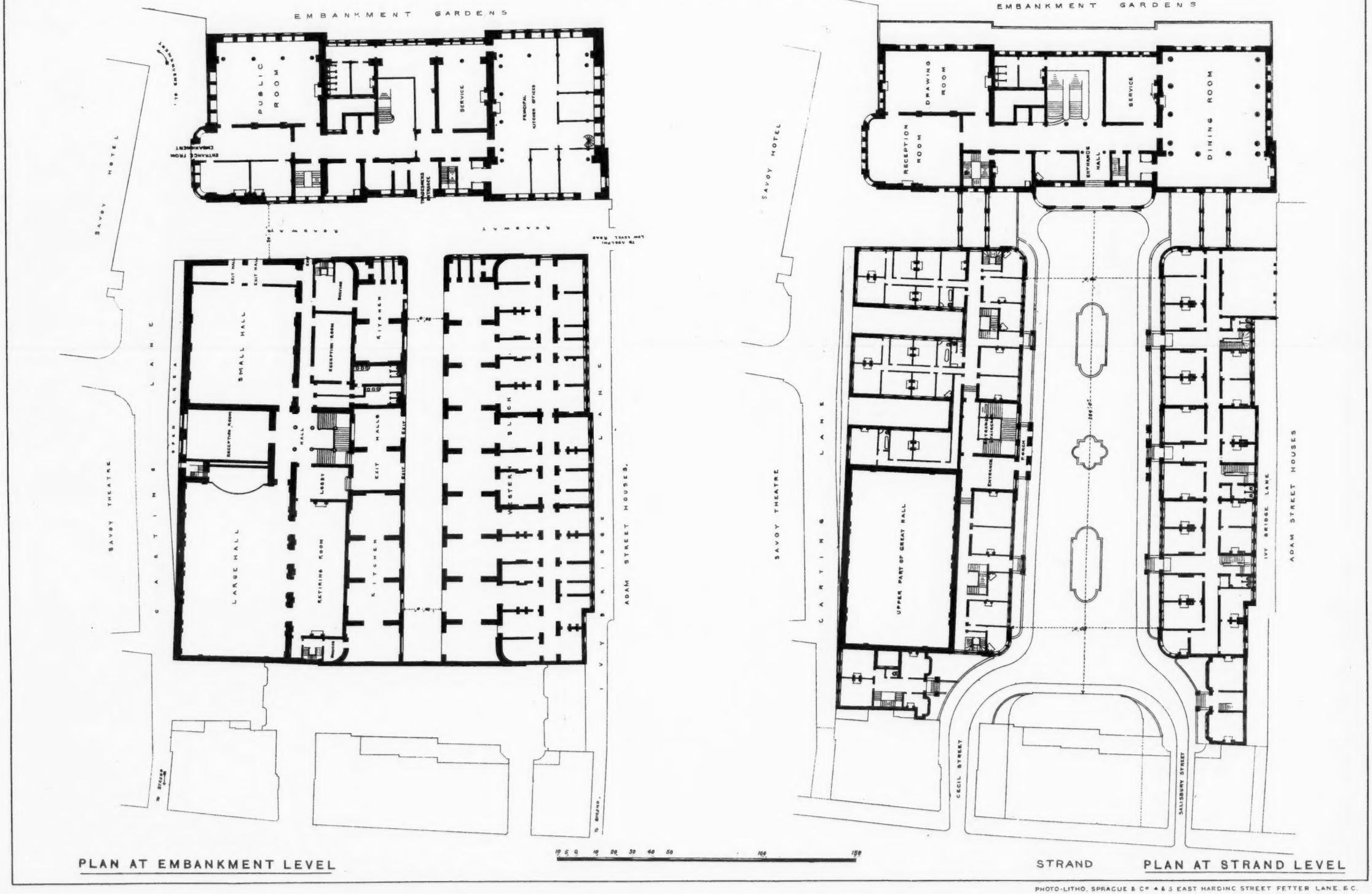

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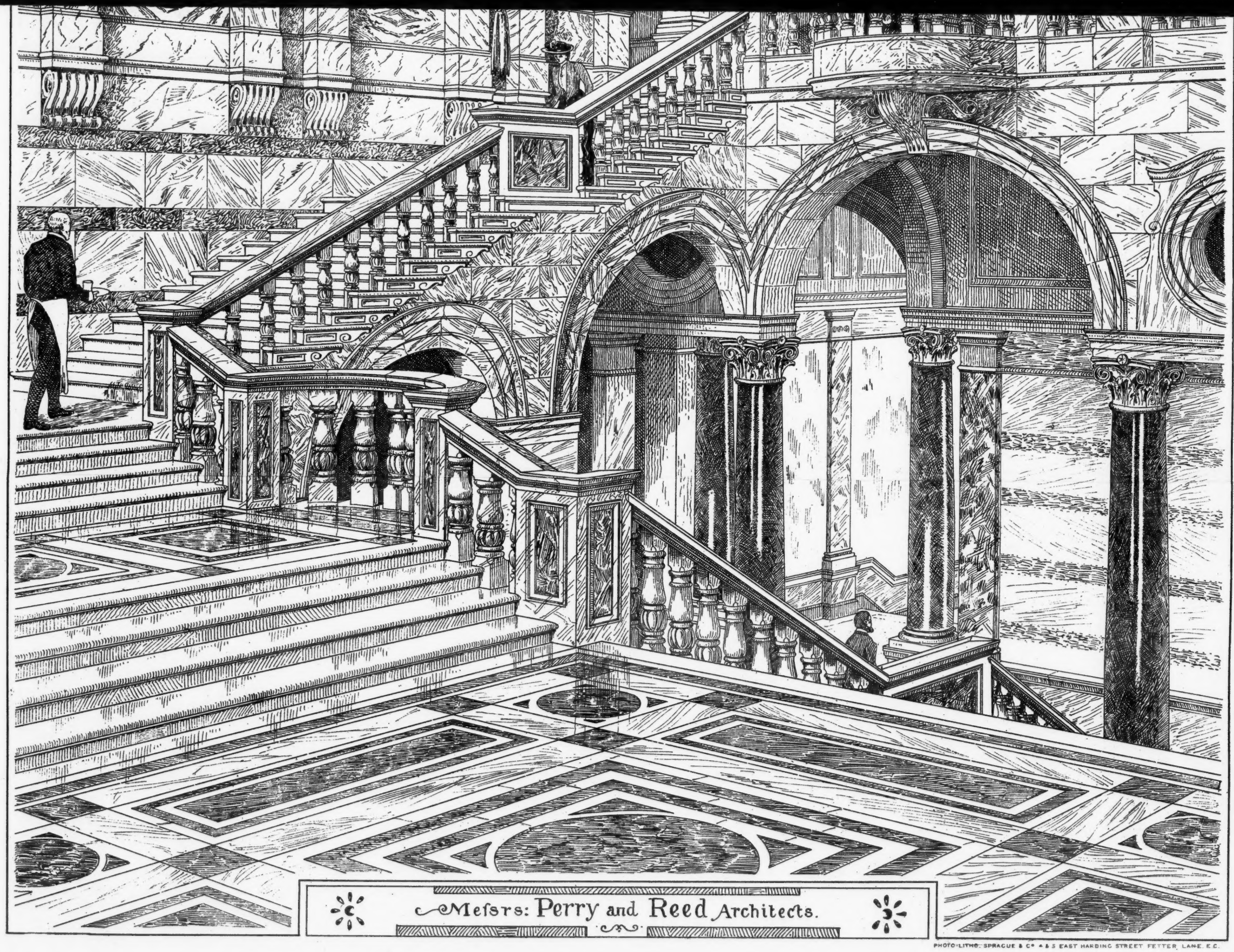

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